AIR FORCE LEGENDS NUMBER 212

NORTH AMERICAN

F-86H SABRE "HOG"

BY EARL BERLIN

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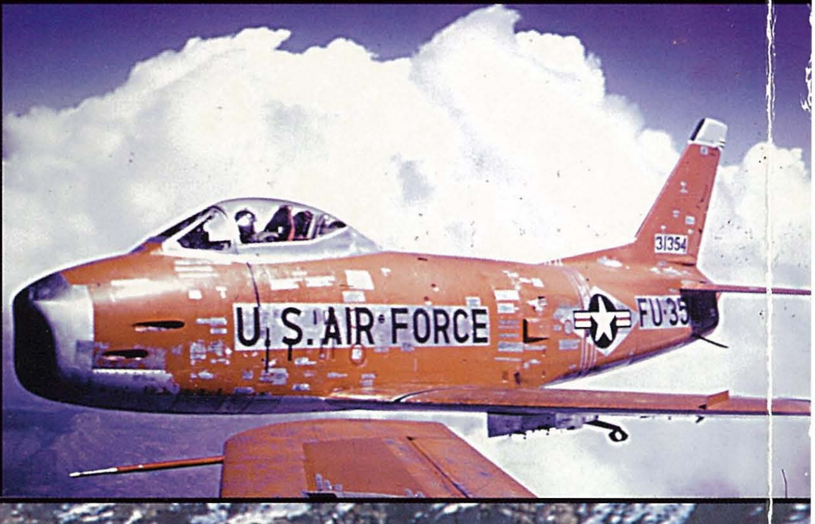
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ABOUT THE AUTHOR:

This is the second book in the Air Force Legends Series for Earl Berlin. His first was an excellent history on the Douglas C-124 Globemaster. Earl has plans for books on the Boeing B-50 and the Convair XC-99.

Earl Berlin joined the Air Force in 1974 and attended tech school at Chanute AFB, IL. His first assignment was as a KC-135 crew chief at Altus AFB, OK. His next assignment was that of a F-105G crew chief at George AFB, CA. He became a tech school instructor at Sheppard AFB, TX, before being assigned to F-4E/G Phantoms at Spangdahlem AB, Germany. Earl finished off his career as the NCO/1C of the Maintenance Operation Center at Luke AFB, AZ. Earl retired in 1995 as a Master Seargeant.

ACKNOWLEDGEMENTS:

The author would like to thank the following individuals for their contributions to this work. As was the case with the C-124 book I authored, this project couldn't have been completed without the enthusiastic and authoritative assistance of people who share a fondness for the airplanes this author writes about.

Steve Brown. He provided a huge amount of help as I attempted to put together a units-of-assignment table that would show which wings and groups the individual F-86Hs served with during the active duty part of their careers.
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Corwin “Corky”Meyer. Grumman's chief test pilot for his F-86H in-flight evaluation. Corky has written Naval Fighters #26 (Grumman XF10F Jaguar), #40 (Grumman F11F Tiger), #44 (Grumman F11F-1F Super Tiger). and #59 (Grumman F9F Panther Part 1). Future Naval Fighter Books on the F9F Cougar, F8F Bearcat, F7F Tigercat, and F6F Hellcat will be written by Corky.

FRONT COVER:
138th TFS “The Boy's from Syracuse” New York ANG F-86H-10 52-5747. (Jim McLennan)

BACK COVER Left-side top-to-bottom: 533rd FDS F-86H-10 53-1265. (Col. H. Bomberger via Menard) F-86H-1 52-1996 was bailed to Lockheed as an F-104G chase plane. (Lockheed) 104th TFS Maryland ANG F-86H-10 53-1250. (via Kaston) 430th FBS at Greenland. (USAF)

BACK COVER Right-side top-to-bottom: 429th FBS belonged to the 474th FBG gunnery team. (via Kaston) 101st TFS Massachusetts ANG F-86H-10 53-1515. (via Kaston) 3595th CCTW target tug F-86H-10 53-1354. (Col. J. Ludwig via D. Menard)

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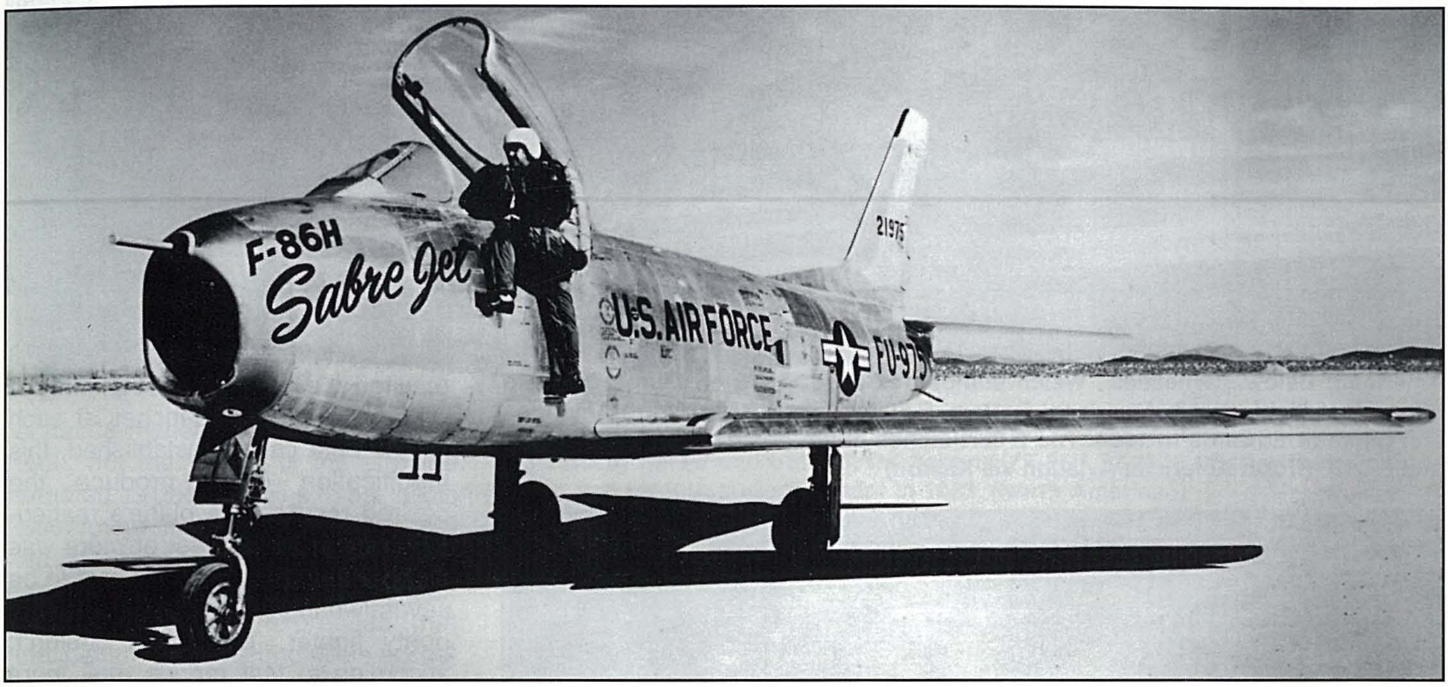
NORTH AMERICAN F-86H SABRE HOG BY EARL BERLIN



Above, the #1 "Hog", YF-86H 52-1975, with Al Blackburn posing on the entrance steps prior to the first flight at Edwards AFB on 30 April 1953. (AFFTC via Ray Puffer)

INTRODUCTION

The F-86 Sabre is well known for its success during the Korean conflict and its wide-spread popularity in air forces around the world. Produced in a variety of models and manufactured in several countries, its simple rugged design, dependability and popularity with maintenance personnel and pilots assured its continued use as a front line fighter for decades.

Most of the Sabre variants have been widely written about - save one, the F-86H. Built in relatively small numbers (475), its service with the front line squadrons of the United States Air Force was brief. Design difficulties made its initial service introduction awkward. Logistics problems, stemming from the fact that the production run was small and priority was given to the evolving Century series fighters, plagued the airplane throughout its active service. It's a tribute to the maintenance personnel within the squadrons, groups and wings that they accomplished as much as they did, given the supply difficulties they encountered. Moreover, the F-100 Super Sabre had already captured the imagination of the military and the public alike and the F-86H was overshadowed (perhaps rightly so) by this state-of-the-art fighter. The F-100 would have its own very vexing teething problems but would, in time, rise to become one of the most significant jet fighters of all time, serving the active Air Force, the Air National Guard and several allied air forces throughout the world.

Though the Sabre Hog, as it was sometimes known, served only briefly with Air Force combat wings and groups, its service with the Air National Guard lasted many years and in that service it proved both dependable and popular.

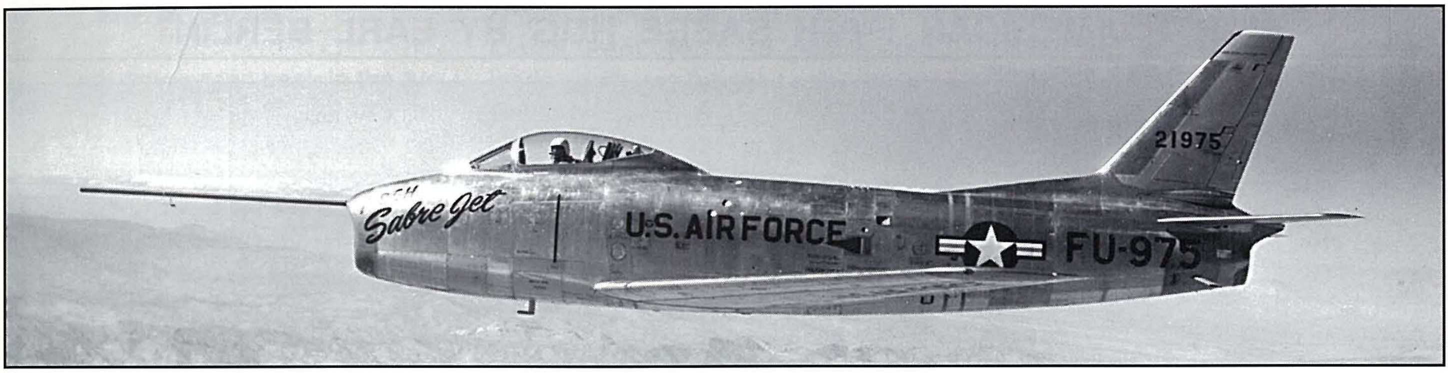
This book is written as a tribute to those who flew, maintained and supported this most unsung version of the F-86. It's my sincere hope that it sheds a proper light on the development and service use of the F-86H and I further hope it rekindles fond memories of a too-little-praised member of a proud jet fighter family.

DEVELOPMENT

The F-86H was initially intended to be a fighter-bomber version of the classic Sabre day fighter, equipped with a more powerful engine. The new engine, the J73, built by General Electric, was substantially more powerful than the J47 used in all previous day-fighter versions of the F-86. With a maximum static thrust rating of 8,920 pounds, the J73 offered a 51% improvement in power over the J47-GE-27 used in the F-86F.

A shorter and narrower engine than the J47, the J73 required a greater volume of air at maximum thrust. The basic Sabre fuselage was deepened six inches from the front to back to accommodate the enlarged air intake and this, in turn, provided room for more fuel. Internal fuel capacity rose by 29%.

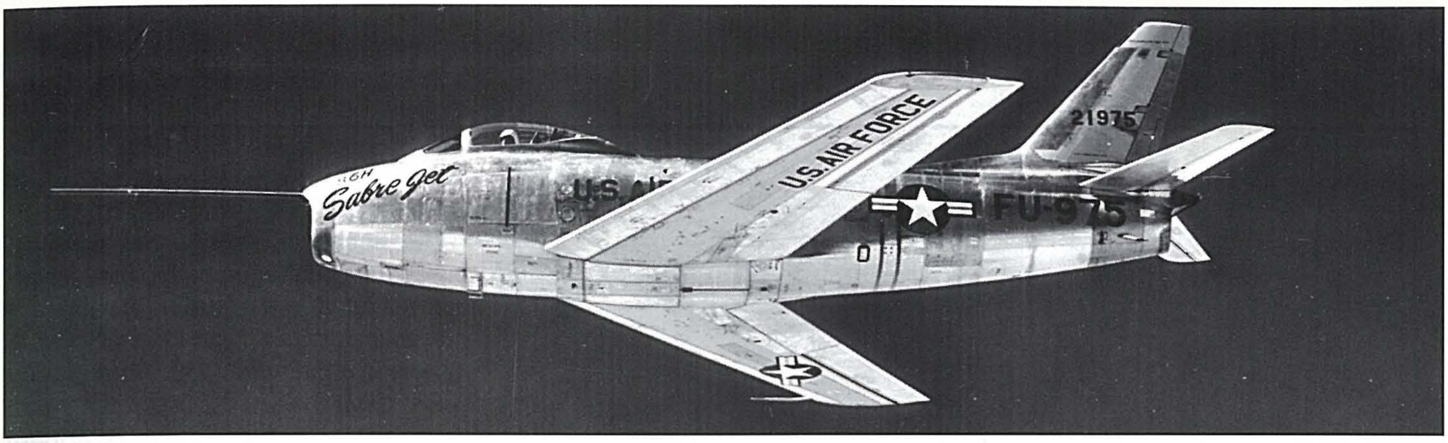
No XF-86H was built, the two prototypes were designated YF-86H and were delivered with slatted wings. Later in the flight test program, both planes were modified to incorporate the 6-3 wing leading edge extension first introduced on the F-86F-25 and F-86F-30. (The modification was introduced on both blocks well into their respective production runs.)



Above, YF-86H 52-1975 in flight with Joseph Lynch at the controls. (North American) Below, "Wheaties" Welch stands next to 52-1975 on Muroc Dry lake after a test flight. (North American) Bottom, F-86 test aircraft and North American test pilots at Edwards in 1954. The F-86H stands tall in comparison to the F-86E and F-86D. (North American Aviation via Kaston)

Flight tests at Edwards AFB resulted in a recommendation that the wing be extended 12-inches at each tip. As best can be established, this modification didn't produce the desired results. The plane's maneuverability at 25,000 feet or more was so poor that the plane was said to be severely handicapped as an air superiority fighter. The plane couldn't, according to test reports, pull more than 1.5 g's at 40,000 feet, though it's not clear whether that figure applied to the wing with the tip extension or the one without. In either case, high altitude maneuverability was still less than desirable.

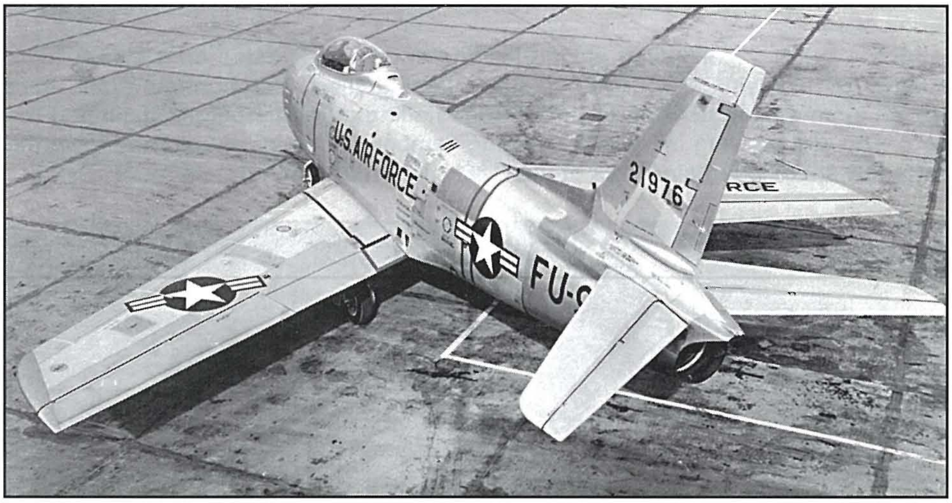
The 6-3 modification, which appears to have been made before the installation of the wing tip extension modification, increased wing chord 6-inches at the wing root and 3-inches at the wing tip. The introduction of the 6-3 wing was supposed to

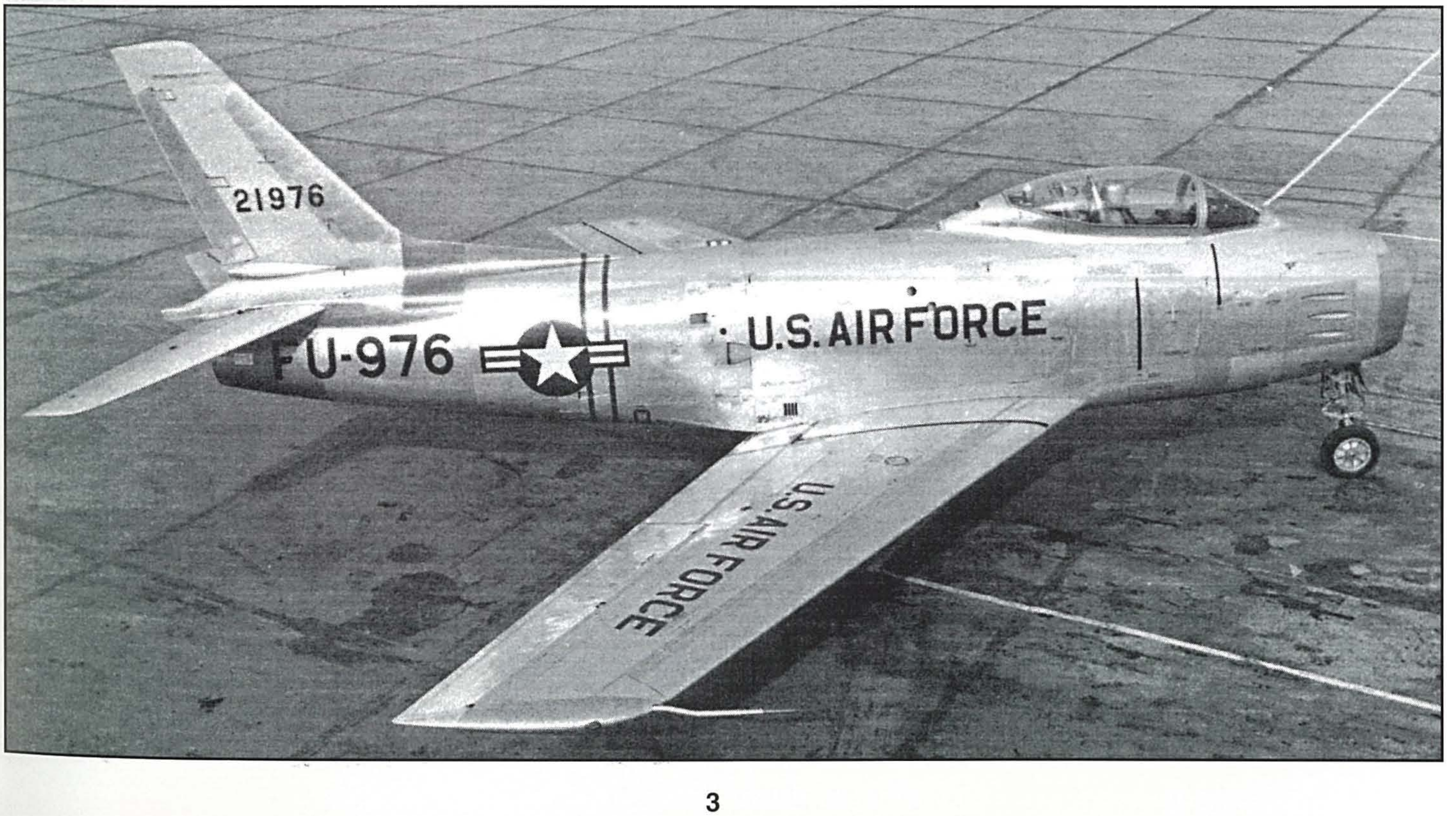


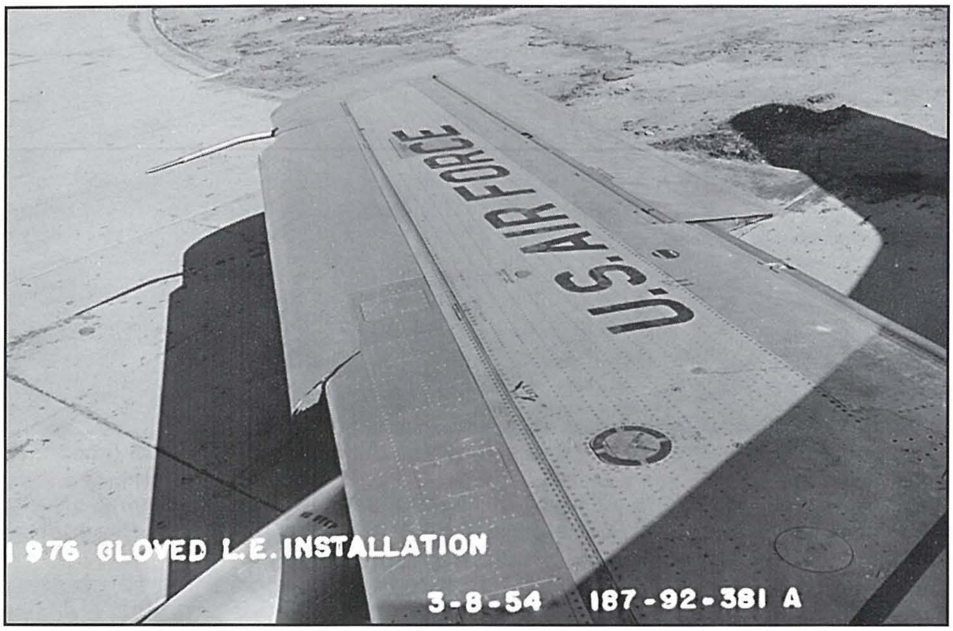
enhance maneuverability at high altitude, but the weight of the airplane negated expected gains. Test pilots also found the F-86H with the 6-3 leading edge wasn't as docile in the landing pattern as a slatted F-86F and concern was expressed that inexperienced pilots and pilots accustomed to the slatted wing Sabre would have problems with the 6-3 equipped "H". Close attention would have to be paid to maintaining published airspeeds in the landing pattern to avoid accelerated stalls.

The F-86H's safety record, after it joined the active duty squadrons, proved the test pilots fears were well founded; low time pilots' had problems with the airplane at landing pat-

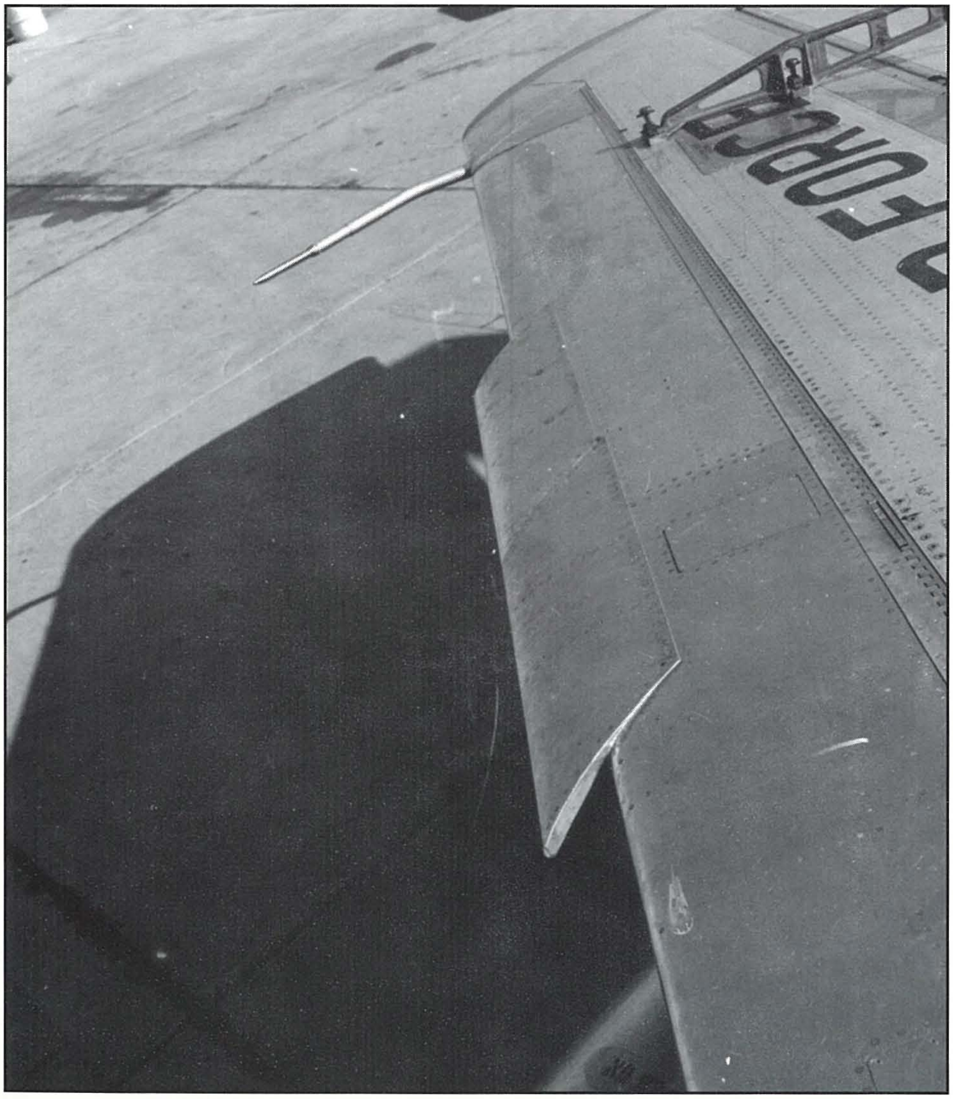
Above, YF-86H #1 52-1975 in flight on 9 June 1953 with original wing. (North American) Below and bottom, the second YF-86H 52-1976 fitted with the original wing and smooth surface rudder in 1953. (North American)







Above, YF-86H 52-1976 with gloved leading edge being tested on 8 March 1954. Below, 52-1976 with 50% gloved leading edge installed. Both configurations were tested in an attempt to stop the wing from stalling at the tip before stalling at the root. The gloved wing increased the wing camber at the tip, but did not solve the poor low speed characteristics of the F-86H (North American)



tern speeds and altitudes.

North American Aviation, at an unspecified point in time, in response to these concerns, made available to the Air Force an F-86F equipped with the slatted 6-3 wing leading edge. The plane was evaluated and the significant improvement in low speed handling and elimination of adverse stall characteristics in the F-86F were noted. The recommendation, after an extensive test program, was made that the slatted 6-3 wing be introduced on the F-86H.

Engineer and Air Force Pilot William Simone (see Air Force Legends #203 the North American F-107A) brought these details of that test program to light: "The aircraft also suffered from low speed handling problems when the standard slatted wing leading edge was installed. Approach to stall and stall flight characteristics were also unacceptable with this wing. To improve low speed handling the aircraft was modified with a 6-3 fixed leading edge wing for its 9th flight. In the clean configuration (test pilot) Joe Lynch reported 'mild buffet starts at 175 knots but the airplane can be flown down to 122 knots at which time complete stall occurs. There is very little tendency to roll off either to the right or left throughout this deceleration.' This was a great improvement over the previous stall performance with the standard wing flown up to that time. But the 6-3 leading edge came with a cost. With the gear and flaps down, 'the nose yawed pretty badly to the right at 128 knots which was accompanied by bad left wing drop. The airplane could be flown down to 109 knots indicated airspeed but controlability was very questionable below 128.'

"After the 10th flight of the number one aircraft Lynch expressed his opinion of the 6-3 leading edge by stating, 'that the general handling qualities with the 6-3 leading edges at 45,000 have been considerably improved since the airplane does have *some* maneuver factor at this altitude.

By the time the program had progressed to the 99th test flight, the 6-3 wing leading edge had been removed and the standard slatted wing had been reinstalled. Tests were run with the slats locked closed to establish a baseline, on this flight, with which to compare further test flights in which the slats would be used.

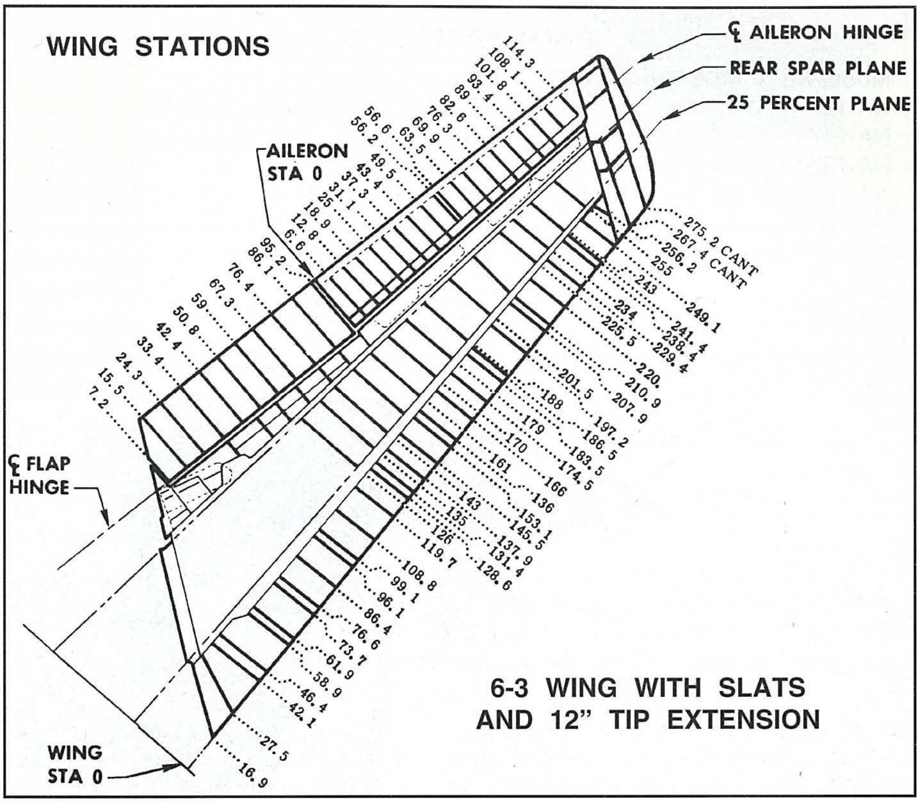
On the 101st flight, the outboard slats were locked closed but the inboards were functional. Results showed that stall recovery in clean and in landing configuration was worse than that experienced when all slats were locked.

The 130th flight was conducted with the 6-3 non-slatted wing installed again but with a 12-inch span extension at each wing tip. Flying at 13,000 feet altitude, the airplane trimmed to fly at 150 knots and the landing gear and flaps down, speed brakes open and the engine at idle power, it 'was noted that with a very slow decrease in speed of less than one knot per second ..... the aircraft yawed to the left at 124 knots. This left yaw was followed by a lateral and directional condition of instability, and was not considered controllable below 120 knots.'

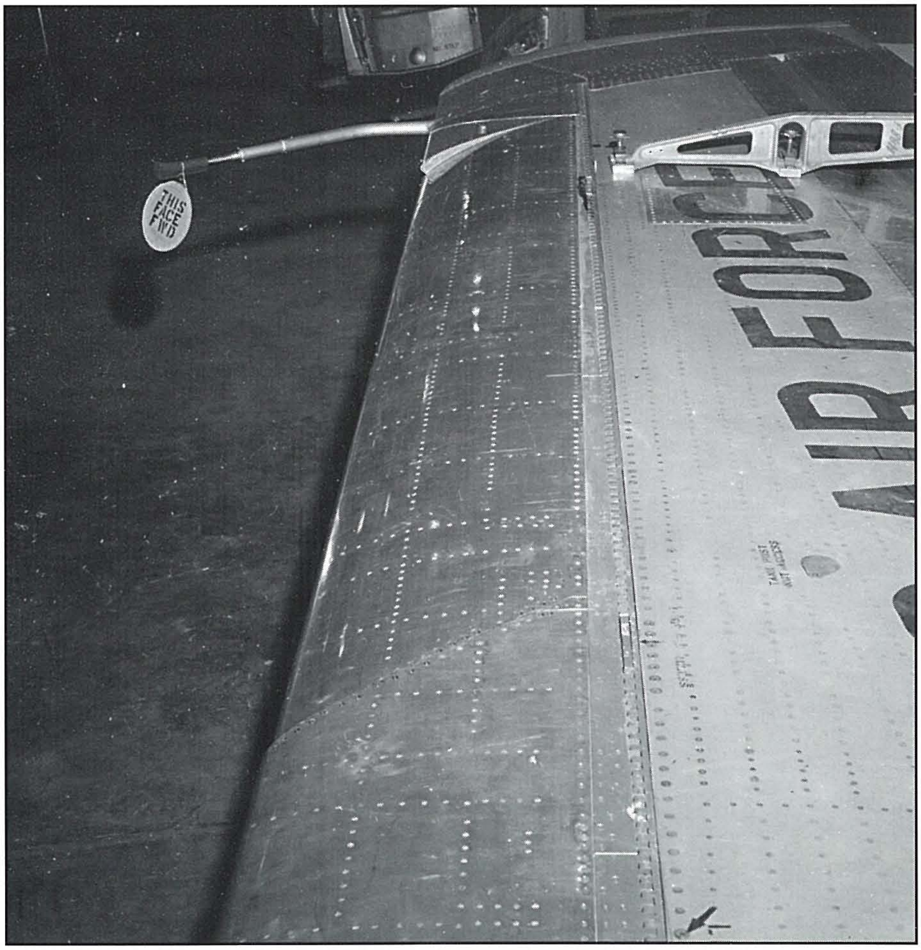
A large number of various configurations such as gloved wing, 50% gloved wings, cambered leading edges and a number of wing fences were flown with little, if any, improvement. After a great deal of testing, the 6-3 slatted leading edge with 12-inch wing tip extension was settled on."

A 1956 Air Research and Development Command (ARDC) report on test results of the F-86H fitted with the slatted 6-3 wing states:

"Installation of slats has given the F-86H excellent turning performance at medium altitudes and good turning performance at high altitudes. Low speed handling characteristics are greatly improved, stall warning, roll-off in accelerated stalls is mild, and landing pattern maneuvers are greatly improved. A small reduction in range occurs with the slats partially open. Normally the slats remain closed at cruise speeds except when at high altitudes with heavy weights as encountered with four



Below, YF-86H 52-1976 with cambered leading edge installed on wing. The cambered leading edge did not improve the F-86H's low speed characteristics any better than the gloved wing did according to North American test pilot Bob Hoover. (North American)



external stores”

The last 10 F-86Hs were built with slats reintroduced and most of the surviving examples were retrofitted. The modification gave the F-86H a wing configuration like that introduced on the F-86F-40. The wing span, already extended two feet, didn't change and slats were installed on the 6-3 wing leading edge. The small wing fences seen on the non-slatted 6-3 wing disappeared.

The first few production standard F-86Hs (Block 1 variants) were used to complete the test program. Some went to Edwards AFB, CA, some to Wright-Patterson AFB, OH, and some to Eglin AFB, FL.

The F-86H's increased performance was capitalized on when, in September 1954, it set two speed records at the National Air Races at the Dayton, OH, airport. Major John L. Armstrong set a 500 km closed course speed record of 649 mph; a world record. Captain Eugene P. Sonnenberg set a 100 km closed course record of 692 mph as well. Captain Sonnenberg was killed two days later while attempting to improve on the previous record.

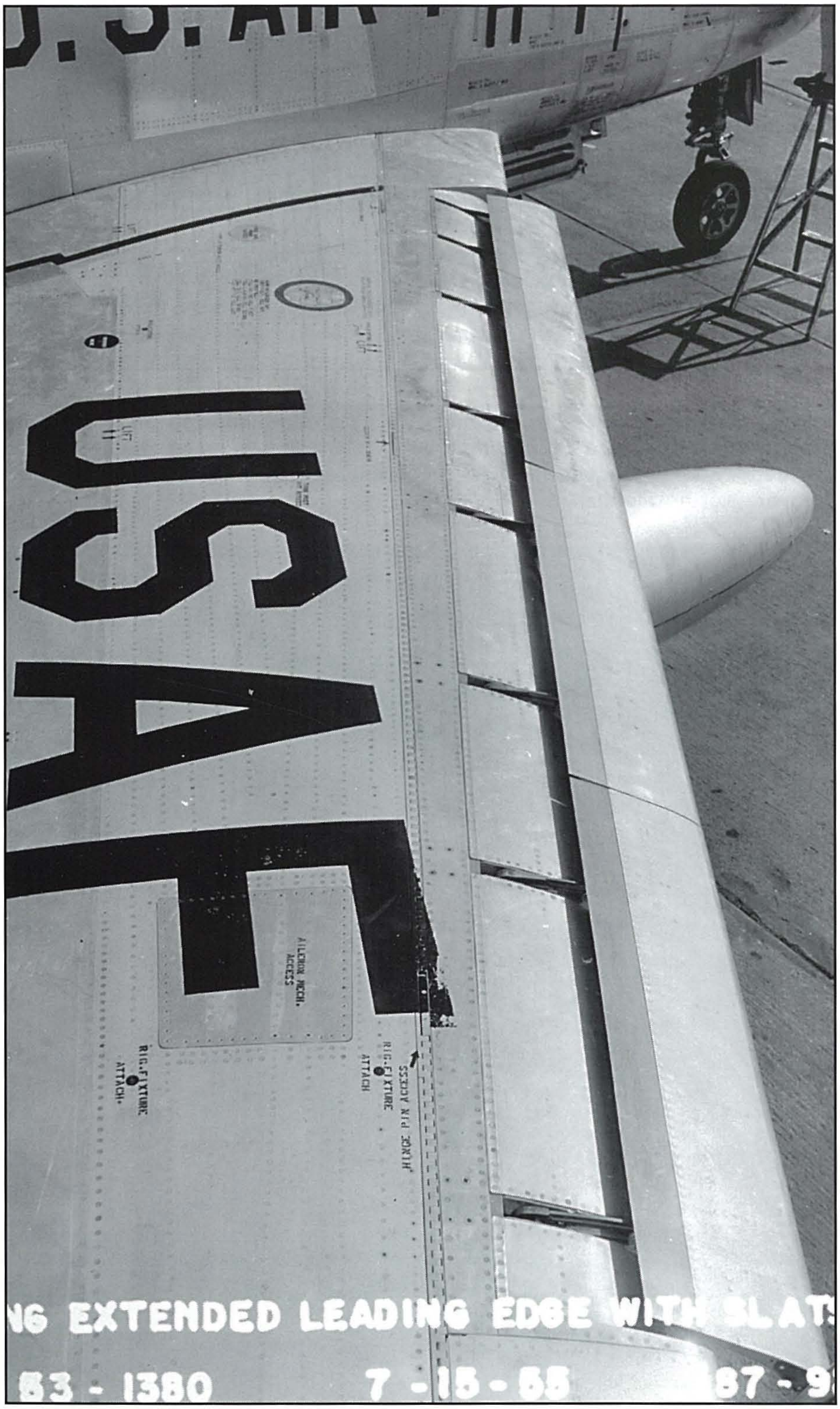
Originally designed to function primarily as a fighter-bomber, the F-86H's mission changed and it was reclassified as a day fighter, albeit with a secondary fighter-bomber capability. The decision to change the plane's mission was based on the fact that the fighter-bomber configuration for the F-86F (Block 35) was capable of carrying and delivering a 1,200lb nuclear weapon as was the F-86H and a temporary replacement was needed for the F-100A, which was designed as a day fighter and was experiencing development problems (The F-100C became the first fighter-bomber version of the Super Sabre).

Evaluation of the F-86H, fitted with the original slatted wing, by Air Force pilots revealed the more powerful J73 engine did little to enhance the plane's top

F-86H PRODUCTION

Model No.	MDS/Block	QTY	Contract No.	Mfr No.	Ser. No.
NA-187	F-86H-1	1	AF-27681	187-1	52-1975
NA-187	F-86H-1	1	AF-27681	187-2	52-1976
NA-187	F-86H-1	115	AF-27681	187-3/115	52-1977/2089
NA-187	F-86H-5	35	AF-27681	187-116/150	52-2090/2124
NA-187	F-86H-5	25	AF-27861	187-151/175	52-5729/5753
NA-203	F-86H-10	300	AF-22305	203-1/300	53-1229/1528

The F-86H prototypes 52-1975/1976 were built in Los Angeles and the production airplanes were all built in Columbus, OH.



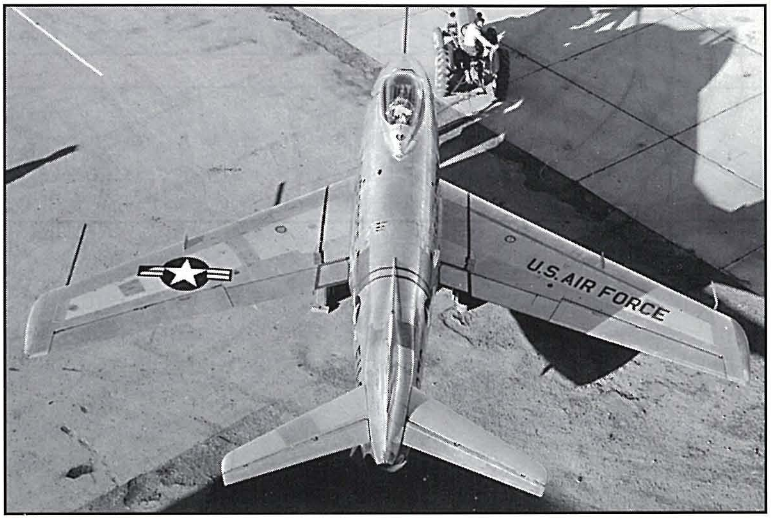
At left, final wing configuration was the 6-3 wing with 12-inch tip extension and slats and was retrofitted to most Hs. (NAA)

speed (due to airframe Mach limitations) at altitudes below 35,000. On the other hand, climb rate, cruise speed and acceleration were better than the F-86F. Take-off distance was shorter too. In the air-to-air role, the slatted F-86H couldn't compare to the F-86F due to the former's higher wing loading. The F-86F excelled at all altitudes and the "H" suffered most at high altitude where it couldn't sustain a tight turn. The non-slatted 6-3 wing improved turning capability at altitude, as mentioned previously. However, this improvement wasn't significant enough and in 1954 the F-86H's mission changed again, this time to tactical support fighter-bomber. Nevertheless, the F-86H ultimately proved to be a better air-to-ground gunnery platform than the F-86F.

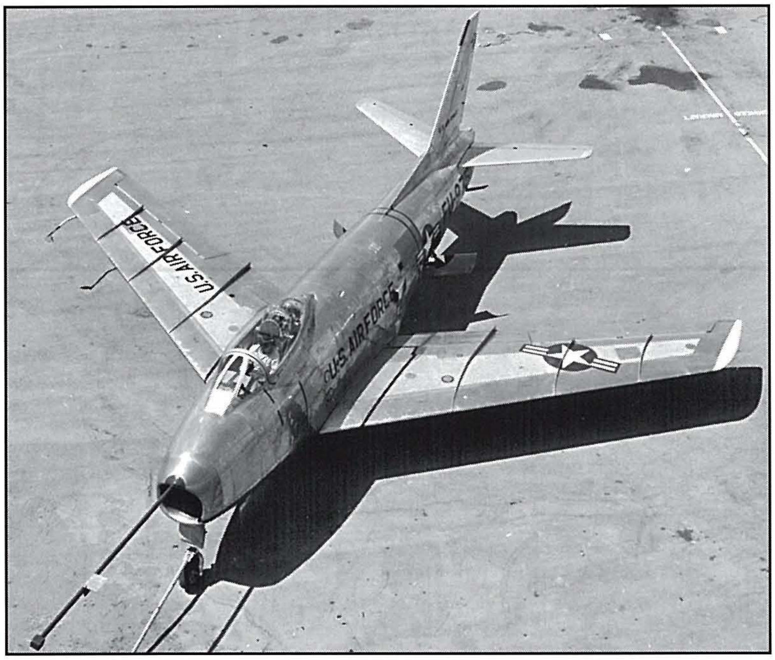
The F-86H underwent one week of high temperature functional testing at Edwards AFB in August of 1955. Only one deficiency was uncovered and it was not considered serious. During low level flight, cockpit cooling at the level of the pilot's head was inadequate. Overall, the airplane was judged suitable for flight operations in a desert environment. Tests indicated the plane could function satisfactorily at temperatures as high as 105° Fahrenheit. Aircraft 52-1985 was used in the tests.

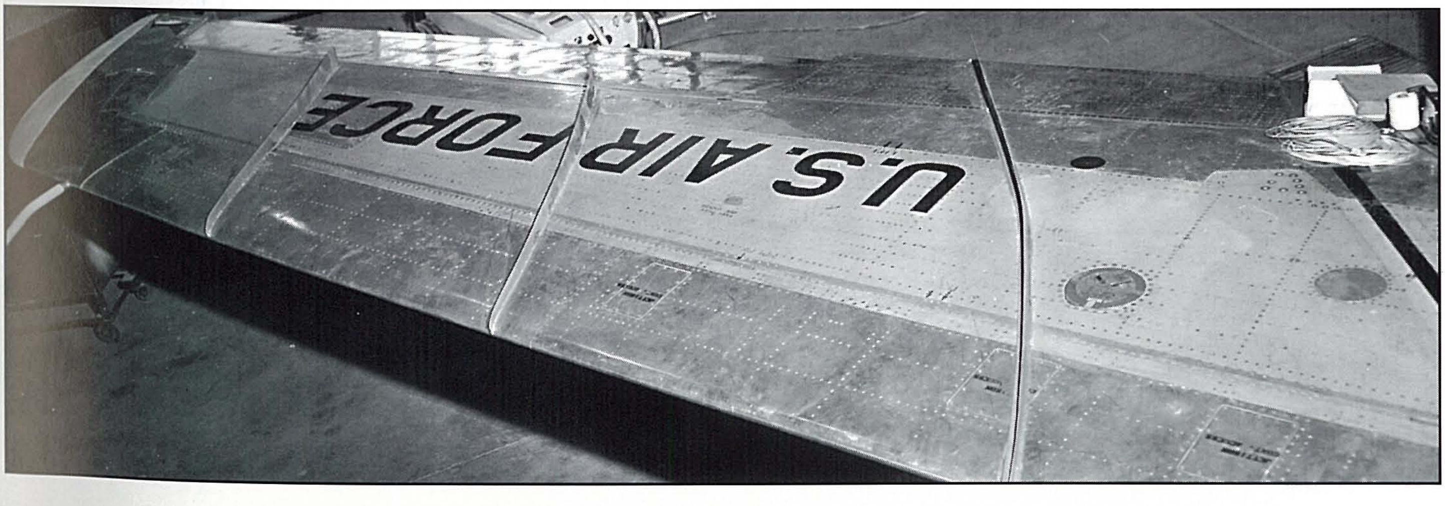
Adverse weather flight tests were conducted at Wright-Patterson AFB and were intended to establish techniques and procedures pilots would use under instrument and general night flying conditions. Flight tests were conducted under Visual Flight Rules (VFR), Instrument Flight Rules (IFR) and under the hood. 32 flights were flown using aircraft 52-1985 between 15 October 1954 and 1 June 1955. The F-86H proved to have excellent handling characteristics during all weather conditions and proved satisfactory for instrument flight conditions.

Flight Time	VFR	IFR	HOOD
Day	24:20	9:45	7:00
Night	2:35		
Total	26:55	9:45	7:00



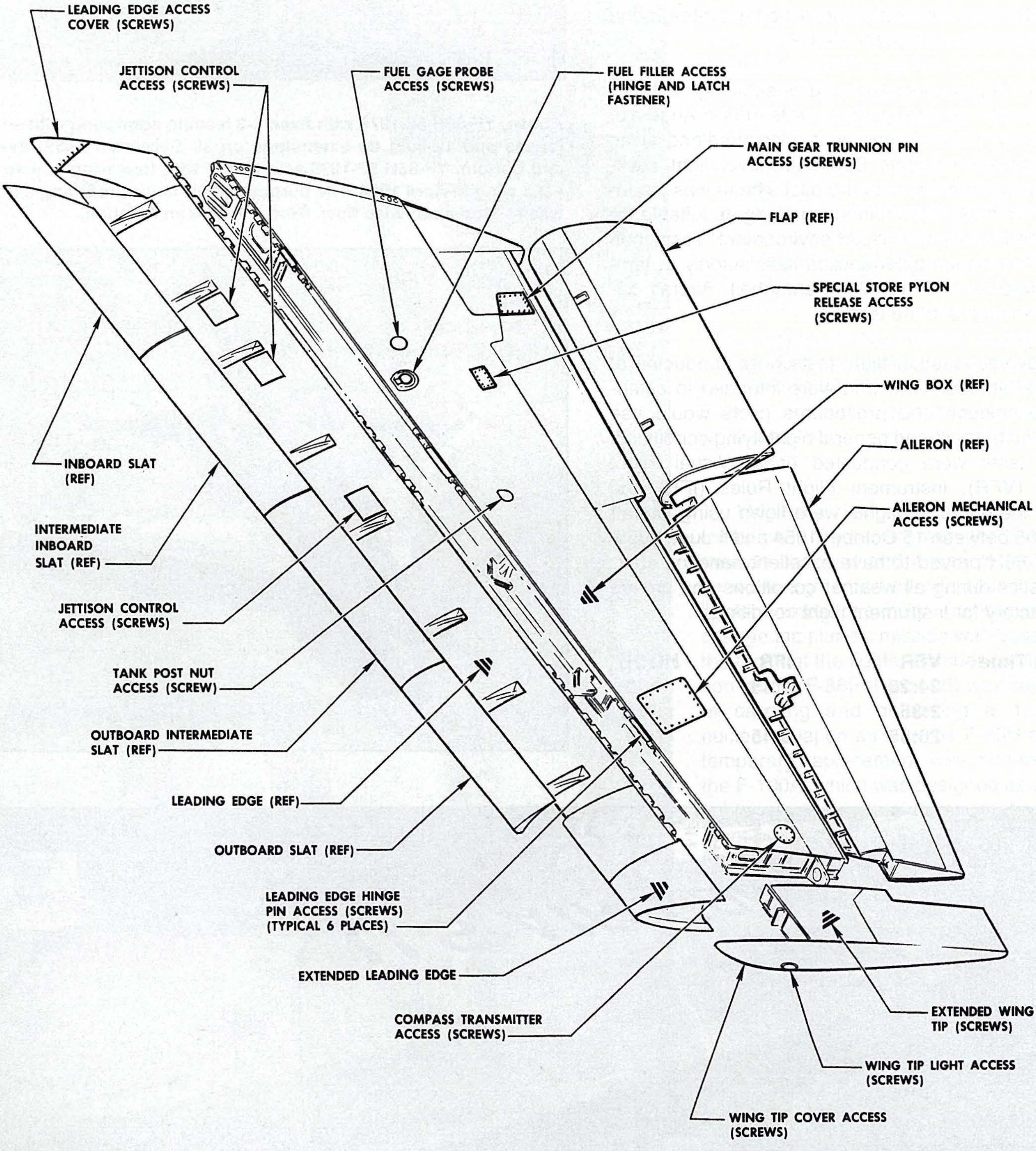
Above, YF-86H 52-1976 with fixed 6-3 leading edge wing with small fences and 12-inch tip extensions on 30 December 1953. Below and bottom, YF-86H 52-1975 was tested with four wing fences on each wing in April 1954. The purpose of the contoured wing fences was to stop span-wise flow. (North American Aviation)



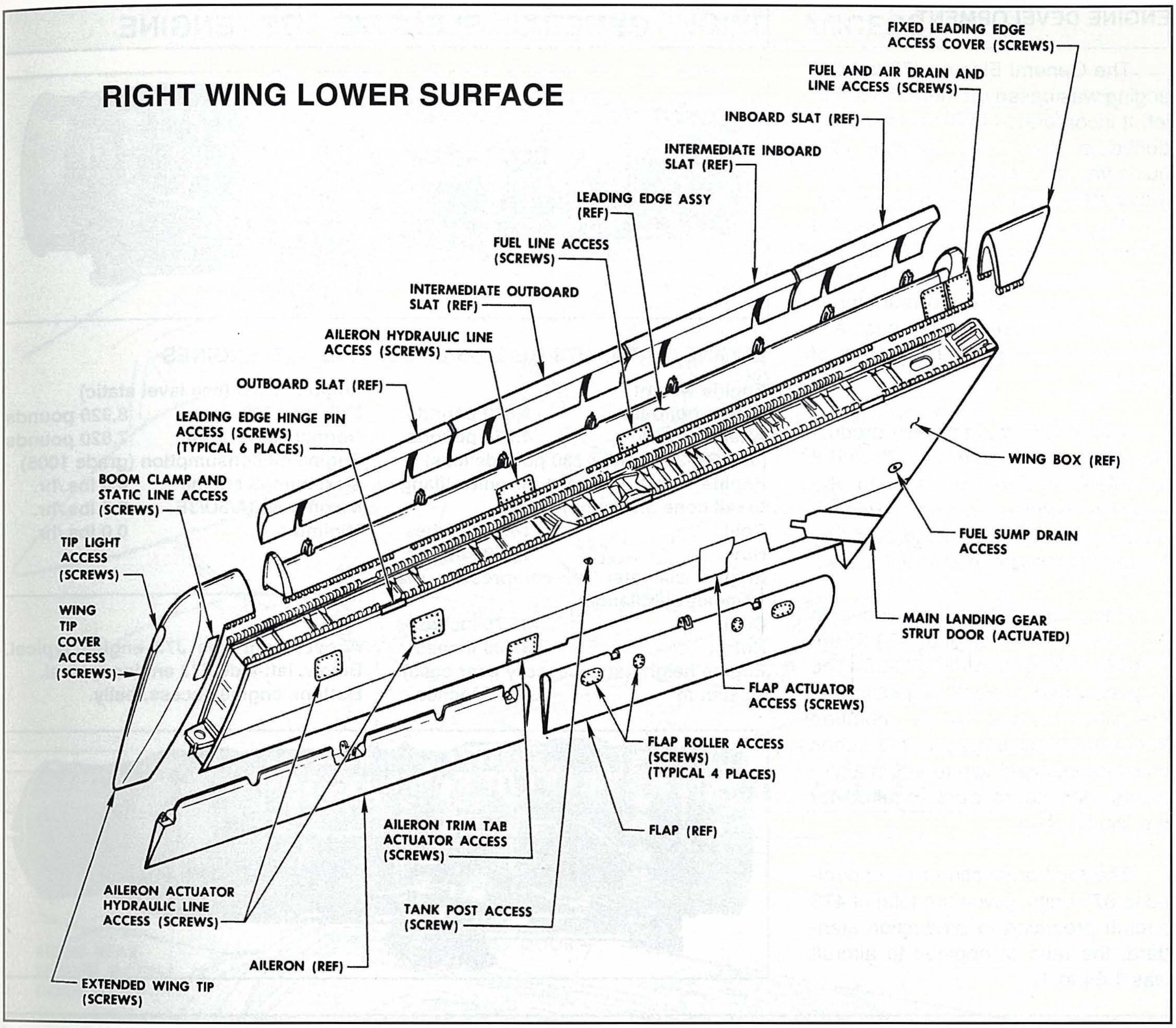


LEFT WING UPPER SURFACE (SLATTED 6-3 WING WITH 12" EXTENSIONS)

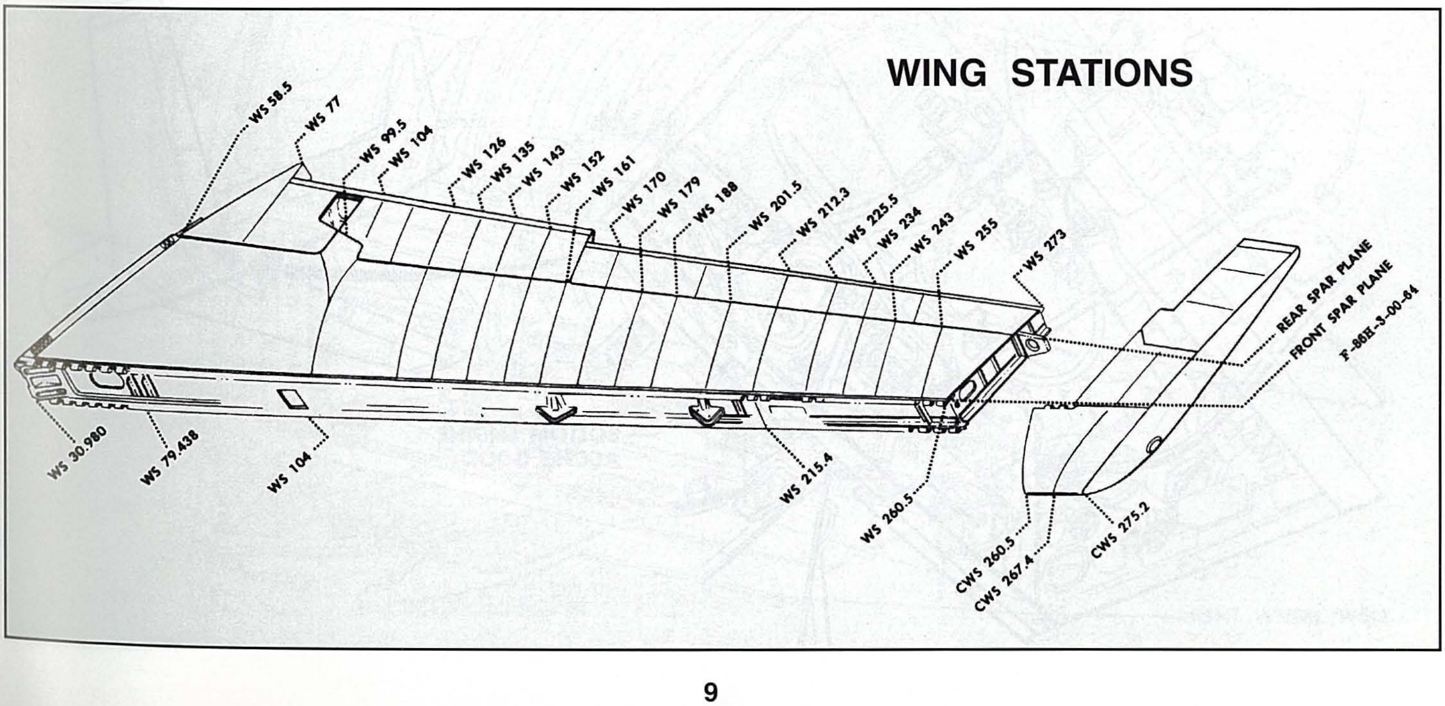
WING FLAP SYSTEM: The wing flaps were electrically controlled and operated and run off the DC system. The flaps were the slotted type and ran from the fuselage to the ailerons on the wing trailing edge. Each flap had its own electric circuit and actuating motor. A condition known as split flaps, in which one flap is retracted while the other is extended, is avoided via mechanical linkage that allows both flaps to retract or extend if one of the electrical circuits or motors fails. This linkage also prevents uneven flap extension. No emergency flap extension system was provided. The flap control handle, located on the left console in the cockpit, allowed selection of UP, MID, or DOWN flap positions. There was no flap position indicator in the cockpit.


LEADING EDGE ACCESS COVER (SCREWS)
JETTISON CONTROL ACCESS (SCREWS)
FUEL GAGE PROBE ACCESS (SCREWS)
FUEL FILLER ACCESS (HINGE AND LATCH FASTENER)
MAIN GEAR TRUNNION PIN ACCESS (SCREWS)
FLAP (REF)
SPECIAL STORE PYLON RELEASE ACCESS (SCREWS)
WING BOX (REF)
AILERON (REF)
AILERON MECHANICAL ACCESS (SCREWS)
INBOARD SLAT (REF)
INTERMEDIATE INBOARD SLAT (REF)
JETTISON CONTROL ACCESS (SCREWS)
TANK POST NUT ACCESS (SCREW)
OUTBOARD INTERMEDIATE SLAT (REF)
LEADING EDGE (REF)
OUTBOARD SLAT (REF)
LEADING EDGE HINGE PIN ACCESS (SCREWS) (TYPICAL 6 PLACES)
EXTENDED LEADING EDGE
COMPASS TRANSMITTER ACCESS (SCREWS)
EXTENDED WING TIP (SCREWS)
WING TIP LIGHT ACCESS (SCREWS)
WING TIP COVER ACCESS (SCREWS)

RIGHT WING LOWER SURFACE


FIXED LEADING EDGE ACCESS COVER (SCREWS)
FUEL AND AIR DRAIN AND LINE ACCESS (SCREWS)
INBOARD SLAT (REF)
INTERMEDIATE INBOARD SLAT (REF)
LEADING EDGE ASSY (REF)
FUEL LINE ACCESS (SCREWS)
INTERMEDIATE OUTBOARD SLAT (REF)
AILERON HYDRAULIC LINE ACCESS (SCREWS)
OUTBOARD SLAT (REF)
LEADING EDGE HINGE PIN ACCESS (SCREWS) (TYPICAL 6 PLACES)
BOOM CLAMP AND STATIC LINE ACCESS (SCREWS)
TIP LIGHT ACCESS (SCREWS)
WING TIP COVER ACCESS (SCREWS)
WING BOX (REF)
FUEL SUMP DRAIN ACCESS
MAIN LANDING GEAR STRUT DOOR (ACTUATED)
FLAP ACTUATOR ACCESS (SCREWS)
FLAP ROLLER ACCESS (SCREWS) (TYPICAL 4 PLACES)
FLAP (REF)
AILERON TRIM TAB ACTUATOR ACCESS (SCREWS)
TANK POST ACCESS (SCREW)
AILERON ACTUATOR HYDRAULIC LINE ACCESS (SCREWS)
AILERON (REF)
EXTENDED WING TIP (SCREWS)

WING STATIONS



ENGINE DEVELOPMENT

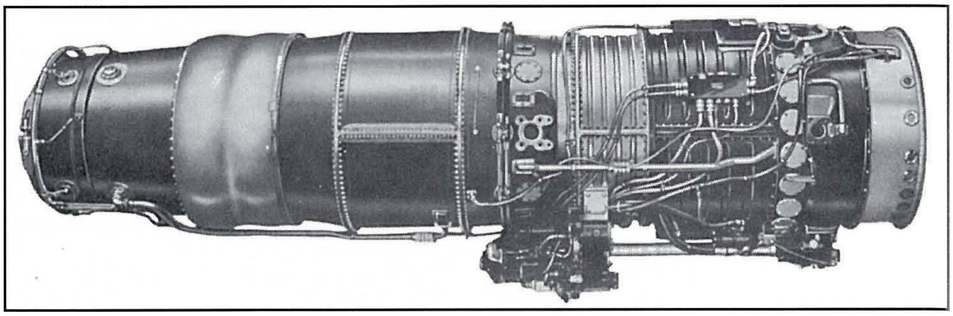
The General Electric J73 turbojet engine was based on the XJ53 turbojet. It incorporated features first introduced in the XJ53: variable inlet guide vanes, canannular combustion, a two-stage turbine and use of titanium. For all intents and purposes, the J73 was a scaled down J53, its size more closely approximating the J47 engine. Capable of a maximum thrust rating of 9,200 pounds, the engine in service was rated at 8,920 pounds of thrust.

The F-86H was the only production airplane to utilize the J73 and it therefore suffered alone with the engine's teething problems. Resolving these issues was complicated by a lack of adequate logistical support.

The J73 would be produced in four variants: the original J73-3, the J73-3A, J73-3D and the J73-3E. The engines weren't interchangeable and the airframe had to be modified before the next engine in the series could be installed. Up to 100 maintenance man hours were required for the modification.

The total production run amounted to 870 units. Given the total of 473 aircraft produced to production standard, the ratio of engines to aircraft was 1.84 to 1.

GENERAL ELECTRIC J73 ENGINE

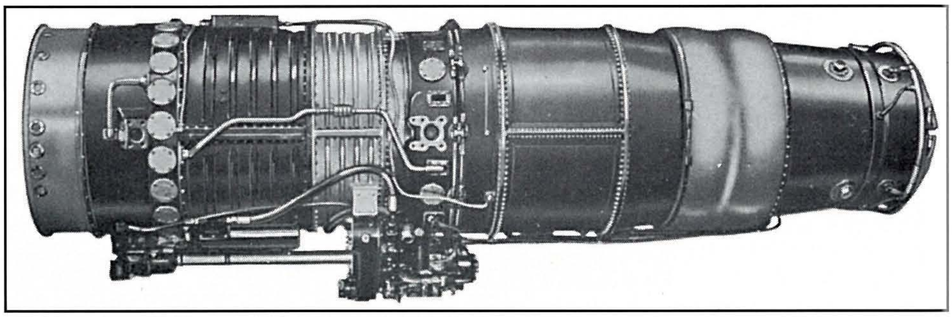


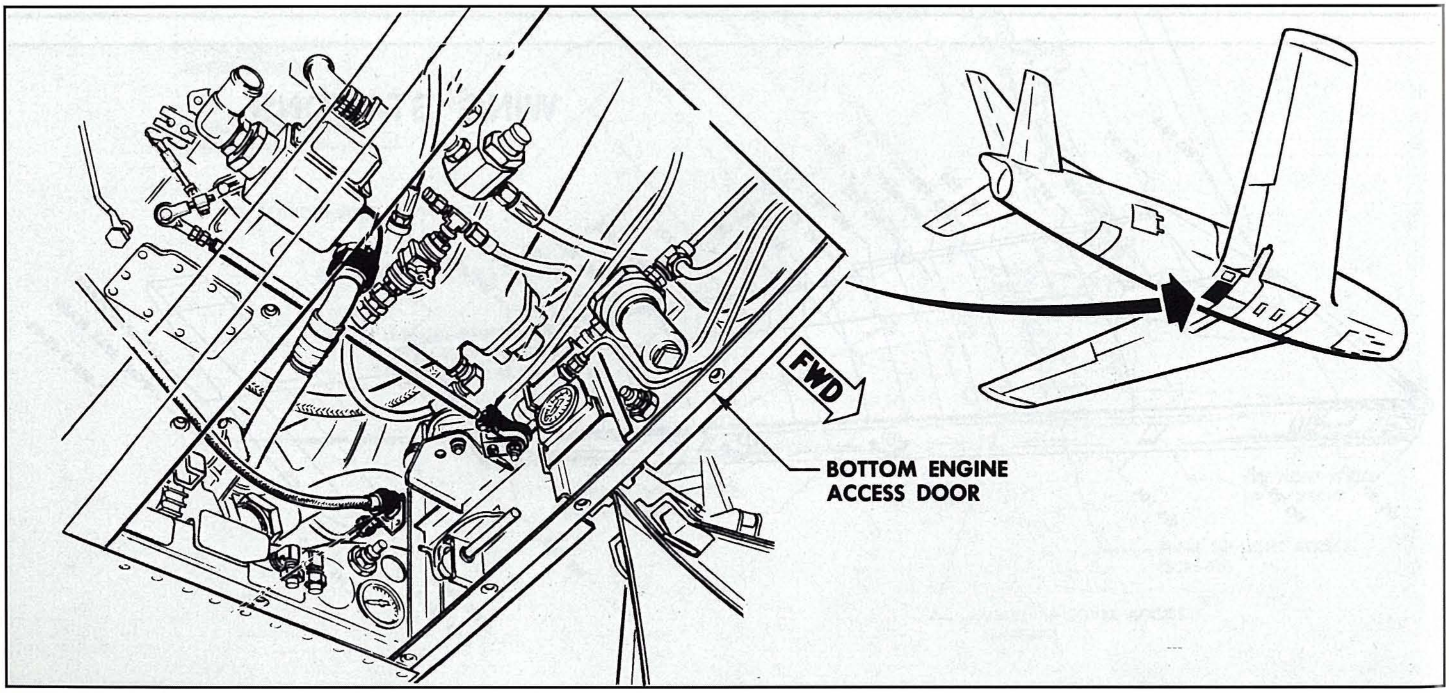
ENGINE DATA: J73-GE-3, -3A, -3D, AND -3E ENGINES

Engine weight	
Before build-up	**3,800 pounds**
After build-up	**4,260 pounds**
(J73-GE-3E weighs 230 pounds less)	
Engine length (forward air-guide flange to tail cone aft flange)	
Cold	**147.10 inches**
Hot	**148.20 inches**
Engine diameter (at compressor rear frameaft bolt flange)	
Cold	**36.75 inches**
Hot	**37.00 inches**
Engine height (at accessory gear case)	
Maximum	**47.37 inches**

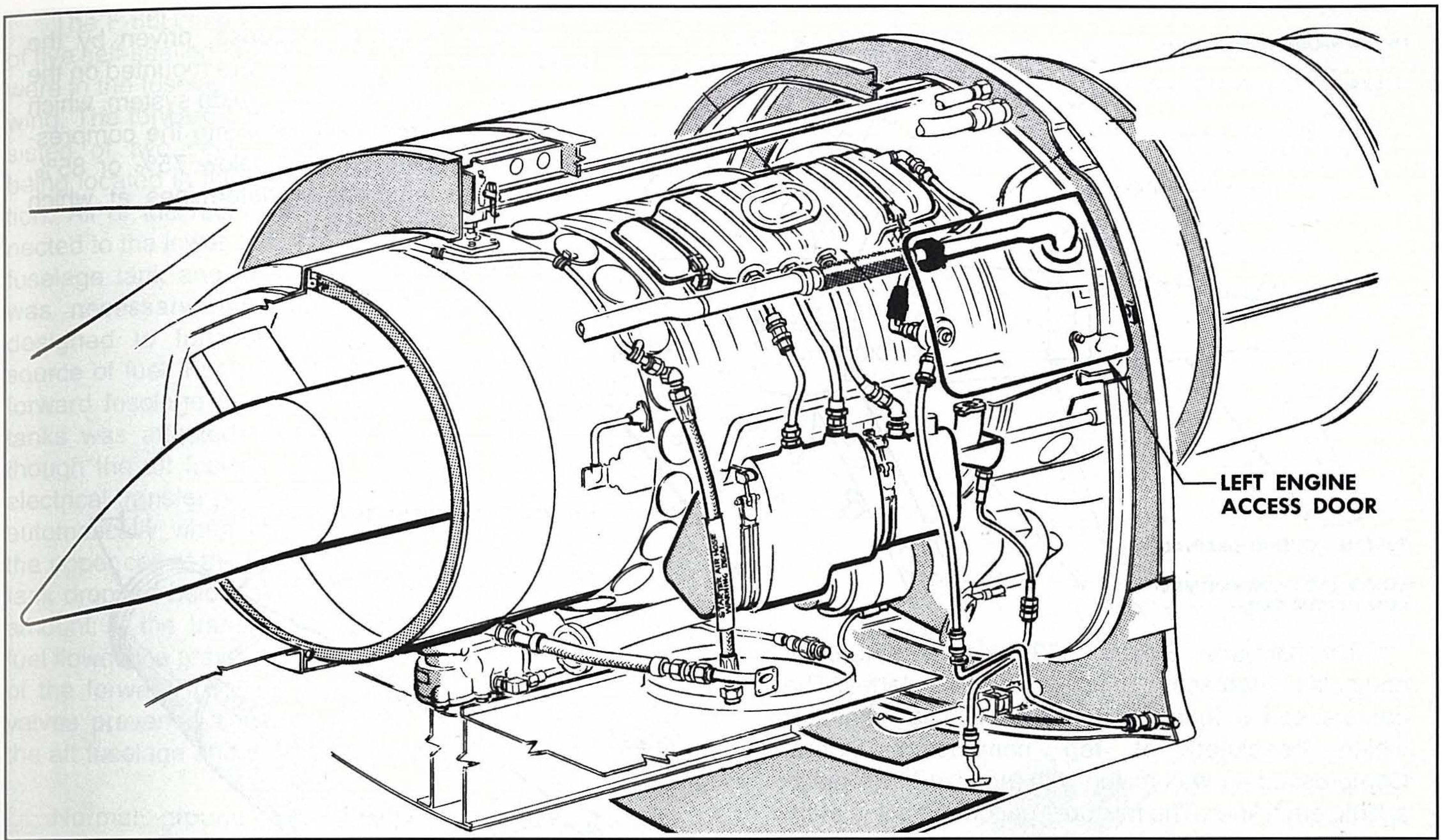
Engine thrust (sea level static)	
Military 100% rpm	**8,920 pounds**
Normal 96.1% rpm	**7,820 pounds**
Engine oil consumption (grade 1005)	
Maximum -3 engine	**4.0 lbs./hr.**
Maximum -3A/3D/3E	**3.5 lbs./hr.**
Minimum	**0.0 lbs./hr.**

Above, right-side J73 engine typical. Below, left-side J73 engine typical. Bottom, engine access, belly.

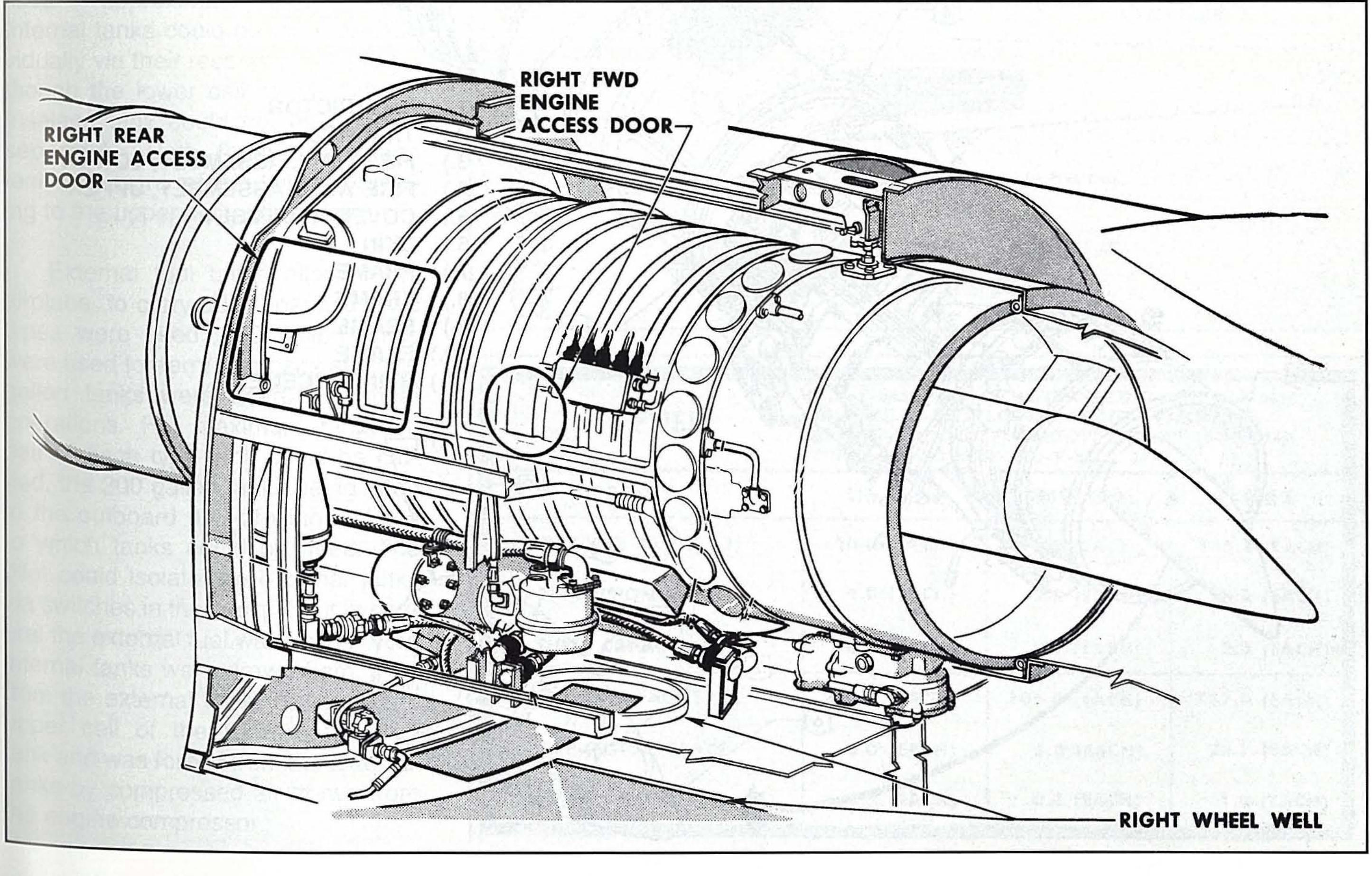




LEFT - HAND FUSELAGE ENGINE ACCESS

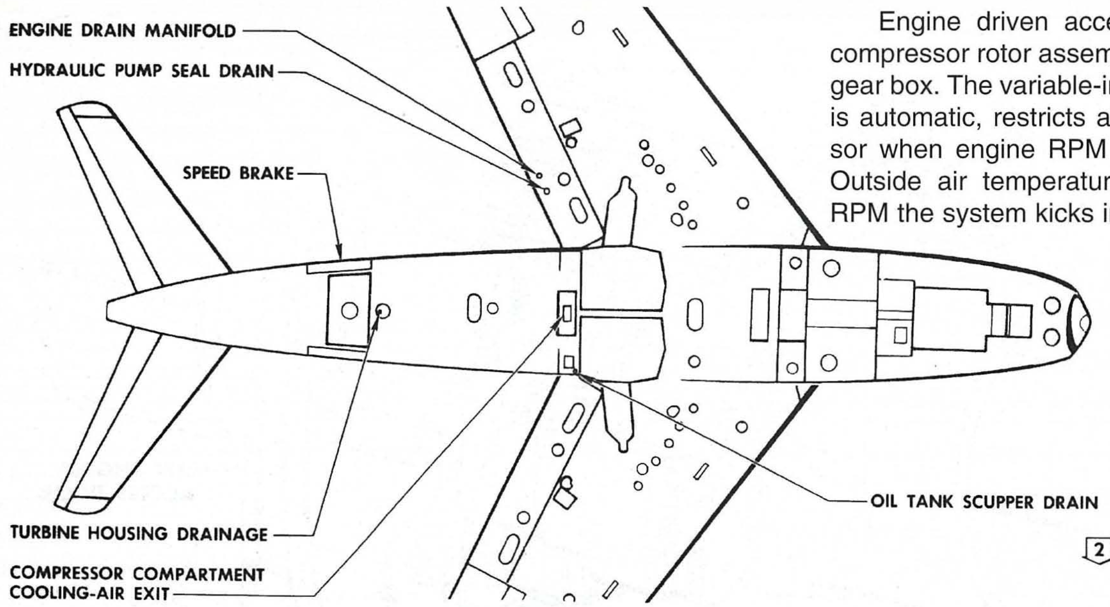


RIGHT - HAND FUSELAGE ENGINE ACCESS

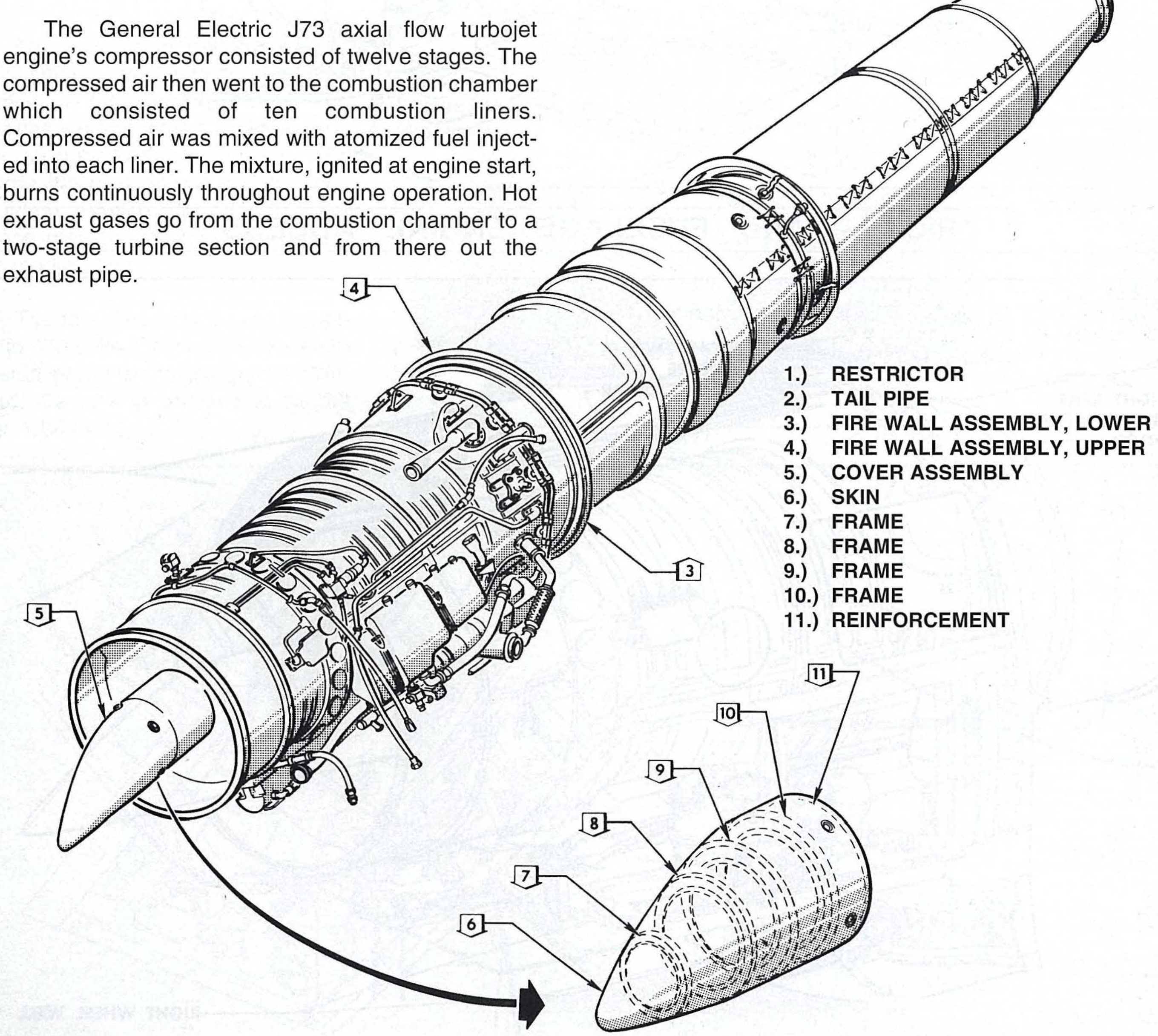


GENERAL ELECTRIC J73 ENGINE AND TAILPIPE GENERAL VIEW

Engine driven accessories, driven by the compressor rotor assembly, are mounted on the gear box. The variable-inlet guide system, which is automatic, restricts airflow into the compressor when engine RPM is below 75% or 85%. Outside air temperature determines at which RPM the system kicks in.



The General Electric J73 axial flow turbojet engine's compressor consisted of twelve stages. The compressed air then went to the combustion chamber which consisted of ten combustion liners. Compressed air was mixed with atomized fuel injected into each liner. The mixture, ignited at engine start, burns continuously throughout engine operation. Hot exhaust gases go from the combustion chamber to a two-stage turbine section and from there out the exhaust pipe.



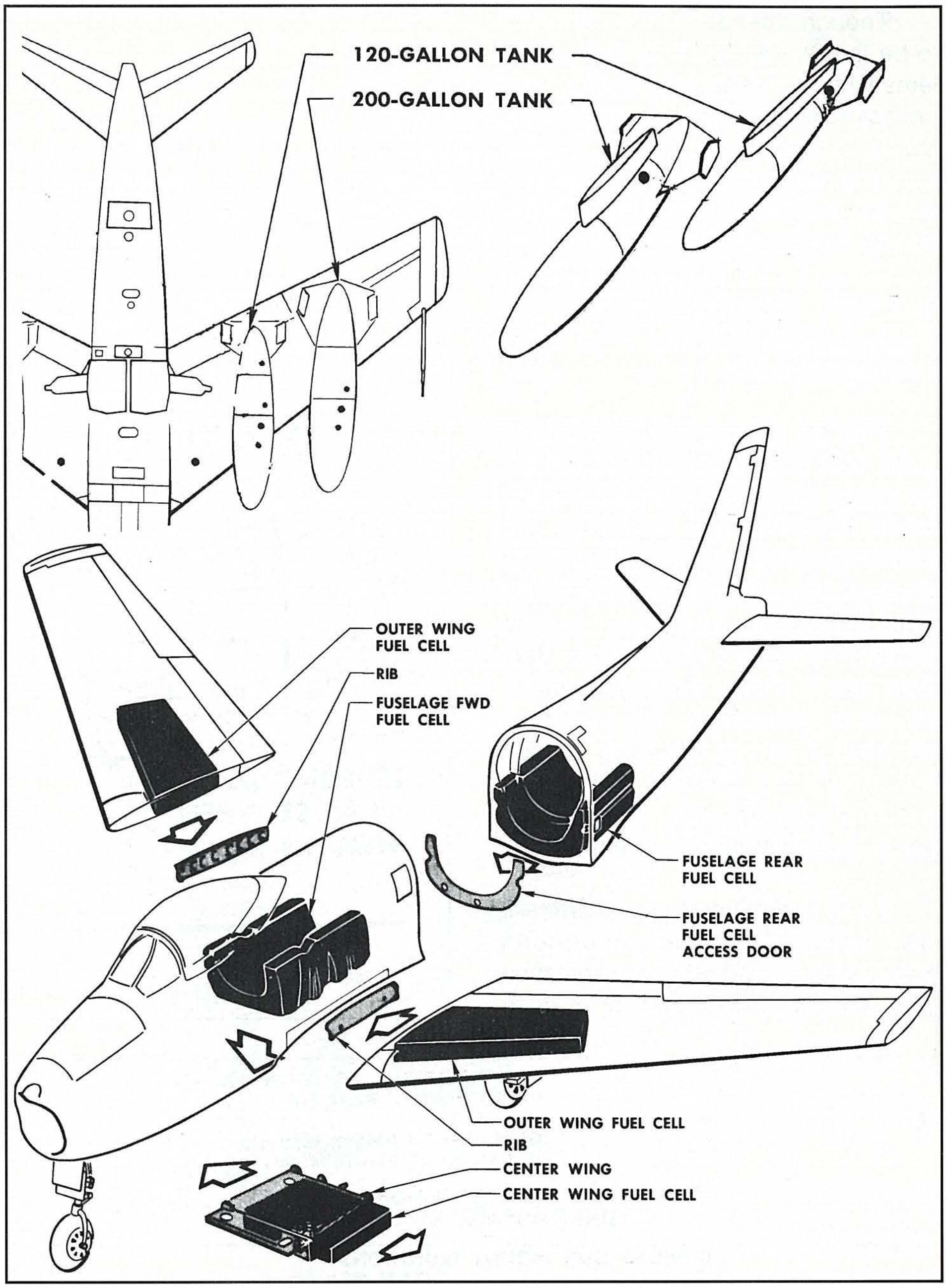
1.) RESTRICTOR
2.) TAIL PIPE
3.) FIRE WALL ASSEMBLY, LOWER
4.) FIRE WALL ASSEMBLY, UPPER
5.) COVER ASSEMBLY
6.) SKIN
7.) FRAME
8.) FRAME
9.) FRAME
10.) FRAME
11.) REINFORCEMENT

F-86H FUEL SYSTEM

The F-86H fuel system consisted of five self-sealing tanks, two of which were in the fuselage, and one in each wing. The forward fuselage tank consisted of two cells, the lower one being located in the center wing section. All of the fuel tanks were connected to the lower cell of the forward fuselage tank and no tank selection was necessary, the system being designed to function as a single source of fuel. Fuel flow to the lower forward fuselage cell from the other tanks was affected by gravity feed, though the aft fuselage tank had an electrical transfer pump that actuated automatically when the fuel level in the upper cell of the forward fuselage tank dropped below a predetermined amount. If the transfer pump failed, fuel flowed via gravity to the lower cell of the forward fuselage tank. Check valves prevened backflow of fuel to the aft fuselage and wing fuel tanks.

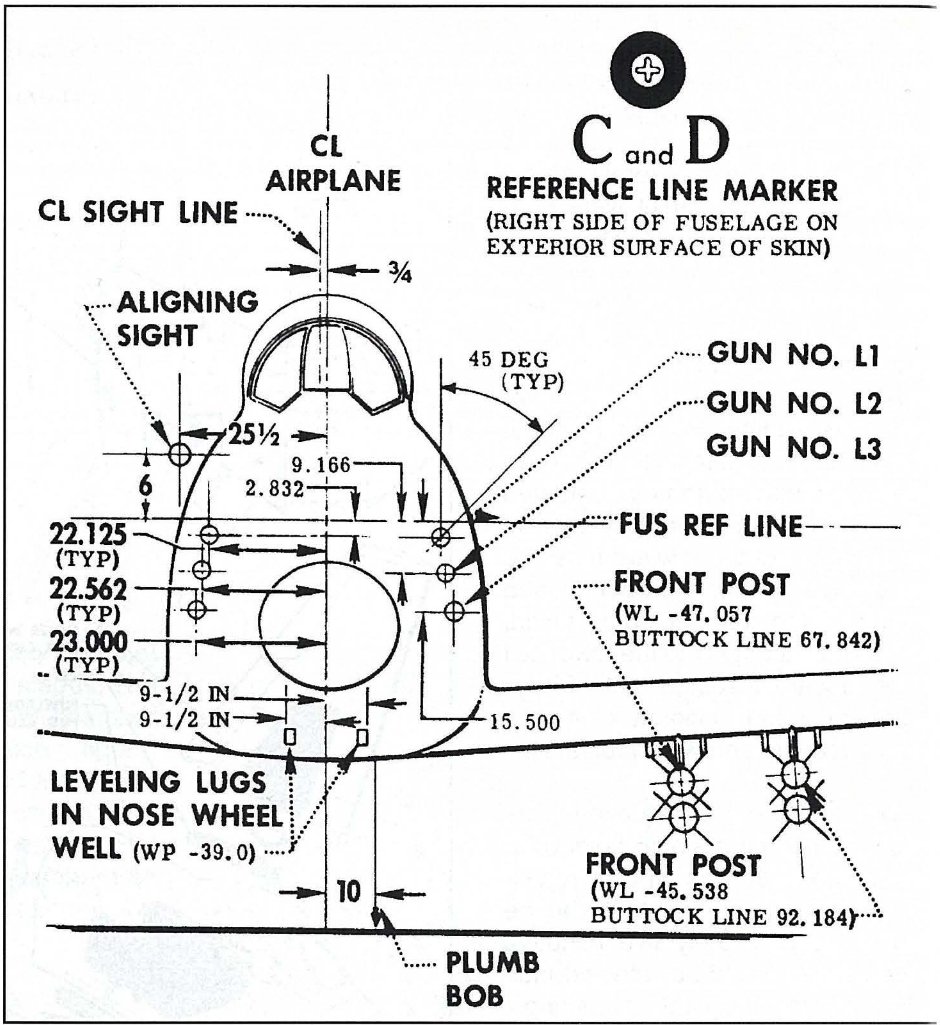
Normal ground refueling was accomplished via a single point refueling receptacle. This type of refueling allowed all internal tanks to be filled in approximately five minutes. Internal tanks could be refueled individually via their respective openings, though the lower cell of the forward fuselage tank could not be refueled separately. Both forward fuselage tank cells were refueled via the opening to the upper cell of that tank.

External fuel tanks allowed the airplane to carry additional fuel. Two types were used. 120 gallon tanks were used for ferry purposes and 200 gallon tanks were used in combat operations. For maximum range, a pair of each type tank could be carried, the 200 gallon tanks being fitted to the outboard pair of wing stations to which tanks could be fitted. The pilot could isolate the external tanks via switches in the cockpit, but in general the external fuel was used before internal tanks were drawn from. Fuel from the external tanks flowed to the upper cell of the forward fuselage tank and was forced from the external tanks by compressed air drawn from the engine compressor.



FUEL	MIL-F-5624, JP-4 OR ALTERNATE JP-3; MIL-F-5616, JP-1; MIL-F-5572 (LOWEST GRADE AVAILABLE). BELOW -29°C (-20°F) AMBIENT GROUND TEMPERATURES, DO NOT USE MIL-F-5616, JP-1.		
TANKS	**US GAL**	**IMP GAL**	**LITERS**
DROPPABLE TANKS (2)	120.0 (EACH)	99.9 (EACH)	454.2 (EACH)
EXPANSION SPACE	4.0 (EACH)	3.3 (EACH)	15.2 (EACH)
SUMP CAPACITY	0.6 (EACH)	0.5 (EACH)	2.3 (EACH)
DROPPABLE TANKS (2)	200.0 (EACH)	166.0 (EACH)	757.0 (EACH)
EXPANSION SPACE	6.0 (EACH)	5.0 (EACH)	22.7 (EACH)
SUMP CAPACITY	0.5 (EACH)	0.4 (EACH)	1.9 (EACH)

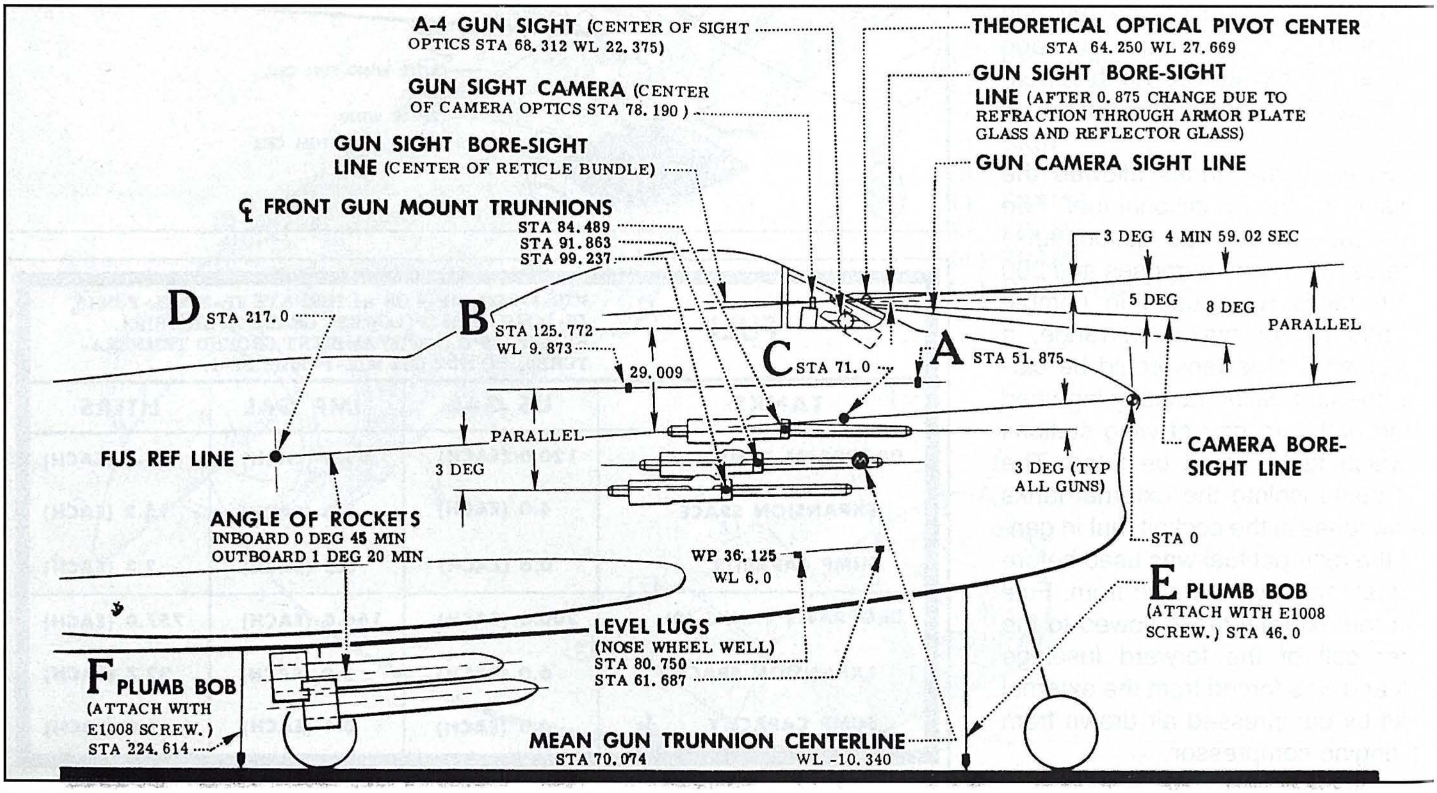
M-3 SIX GUN .50 - CALIBER GUNNERY SYSTEM (52-1975/52-2089)



Though intended armament was to be the 20 mm M-39 cannon, problems with the weapon's development necessitated installation of the classic Sabre armament of 6x50 caliber machine guns on the first 115 production airplanes. These were identified as Block 1 aircraft. The M-39 was introduced on the Block 5 aircraft and had been standardized when the Block 10 aircraft began coming down the production line.

The gunnery system had three guns, and related equipment, mounted inside the fuselage in a compartment just outboard of the cockpit and below the canopy, on each side of the airplane. A gun heater system was also provided. The gun barrels extended forward into stainless steel blast tubes, which attached to stainless steel blast panels. The blast panels were a part of the nose section skin. Ammunition and expended case and link compartments were directly below each gun compartment.

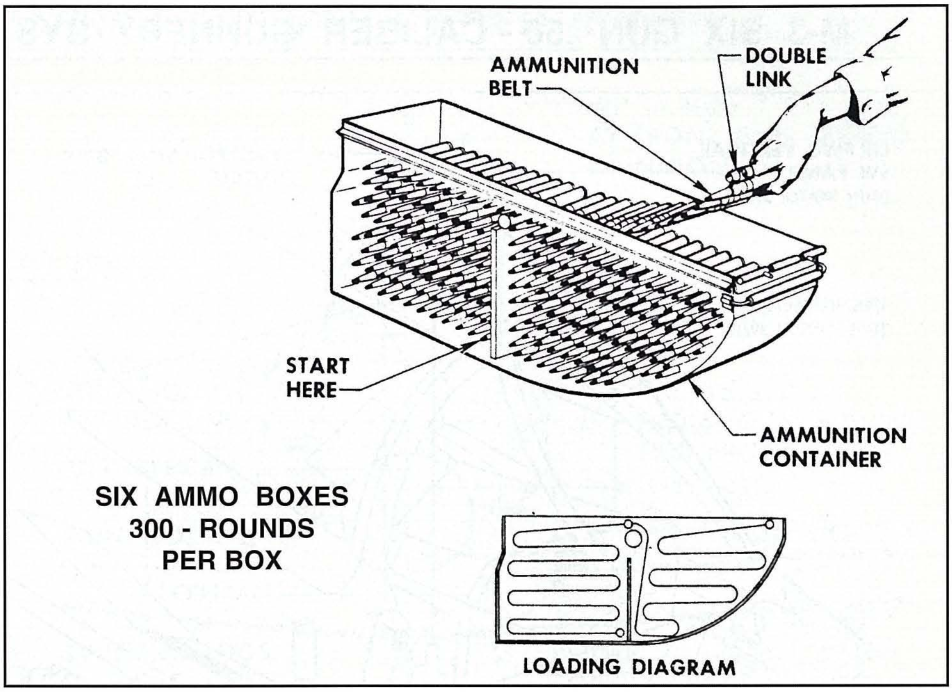
Each ammunition compartment had space for three 300-round ammunition containers, one for each gun. Directly forward and aft of each

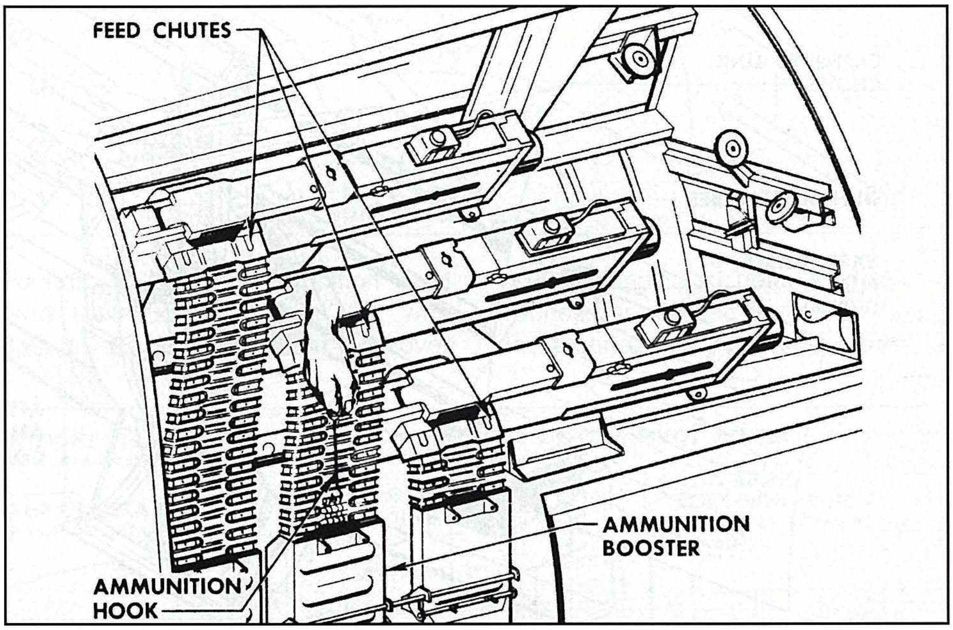

A-4 GUN SIGHT (CENTER OF SIGHT OPTICS STA 68.312 WL 22.375)
GUN SIGHT CAMERA (CENTER OF CAMERA OPTICS STA 78.190)
GUN SIGHT BORE-SIGHT LINE (CENTER OF RETICLE BUNDLE)
℄ FRONT GUN MOUNT TRUNNIONS
STA 84.489
STA 91.863
STA 99.237
THEORETICAL OPTICAL PIVOT CENTER
STA 64.250 WL 27.669
GUN SIGHT BORE-SIGHT LINE (AFTER 0.875 CHANGE DUE TO REFRACTION THROUGH ARMOR PLATE GLASS AND REFLECTOR GLASS)
GUN CAMERA SIGHT LINE
3 DEG 4 MIN 59.02 SEC
5 DEG
8 DEG
PARALLEL
D STA 217.0
B STA 125.772
WL 9.873
29.009
C STA 71.0
A STA 51.875
PARALLEL
3 DEG
FUS REF LINE
3 DEG (TYP ALL GUNS)
CAMERA BORE-SIGHT LINE
STA 0
ANGLE OF ROCKETS
INBOARD 0 DEG 45 MIN
OUTBOARD 1 DEG 20 MIN
WP 36.125
WL 6.0
E PLUMB BOB
(ATTACH WITH E1008 SCREW.) STA 46.0
LEVEL LUGS
(NOSE WHEEL WELL)
STA 80.750
STA 61.687
F PLUMB BOB
(ATTACH WITH E1008 SCREW.)
STA 224.614
MEAN GUN TRUNNION CENTERLINE
STA 70.074
WL -10.340

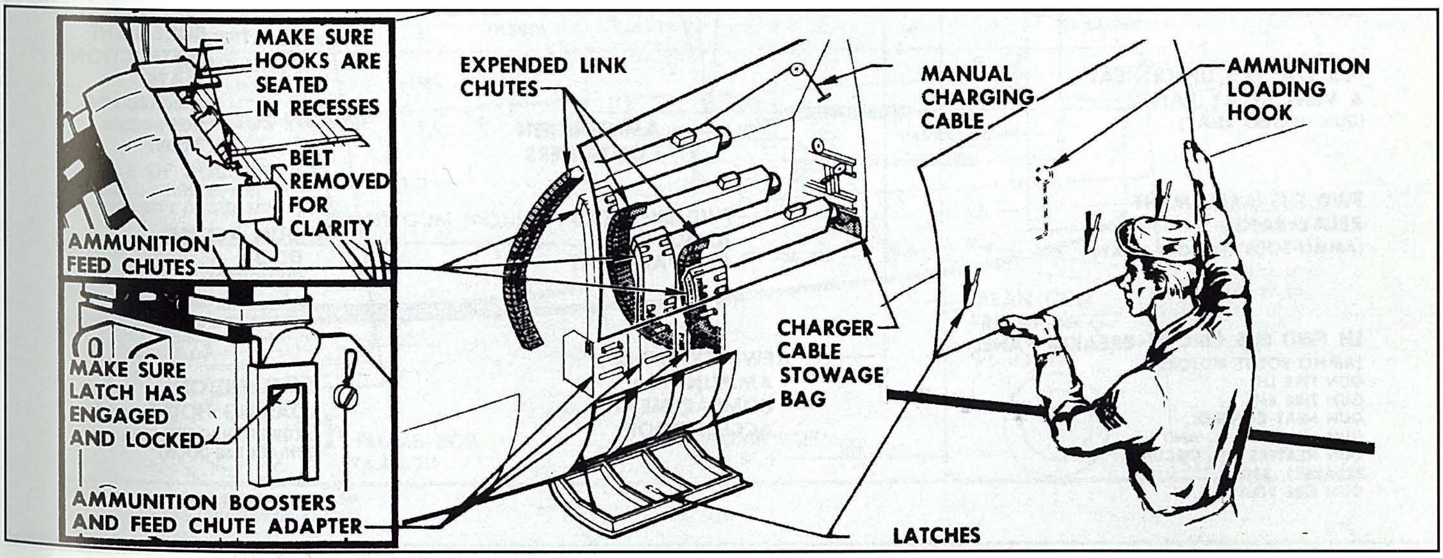
ammunition compartment were the expended case and link compartments. The forward compartment retained the expended cases and links ejected by the upper gun. The aft compartment served the center and lower guns. Ammunition was routed upward to the guns through flexable feed chutes. Electrically driven, sprocket-type ammunition boosters assisted ammunition feeding for the upper and center guns only. Expended ammunition belt links were carried to the expended ammunition compartments by flexible link chutes which attached to the inboard side of each gun. Expended cartridge cases were ejected from the bottom of each gun into fixed chutes, which lead to the expended ammunition compartments. Ammunition loading hooks were stowed on the inside of the gun access doors, and cables for manually charging the guns were stowed in canvas bags on the aft bulkhead of each gun compartment.

The gun access doors were removable. The hinged ammunition compartment doors opened fully for removal or installation of ammunition containers or could be opened partially to serve as ammunition loading platforms.

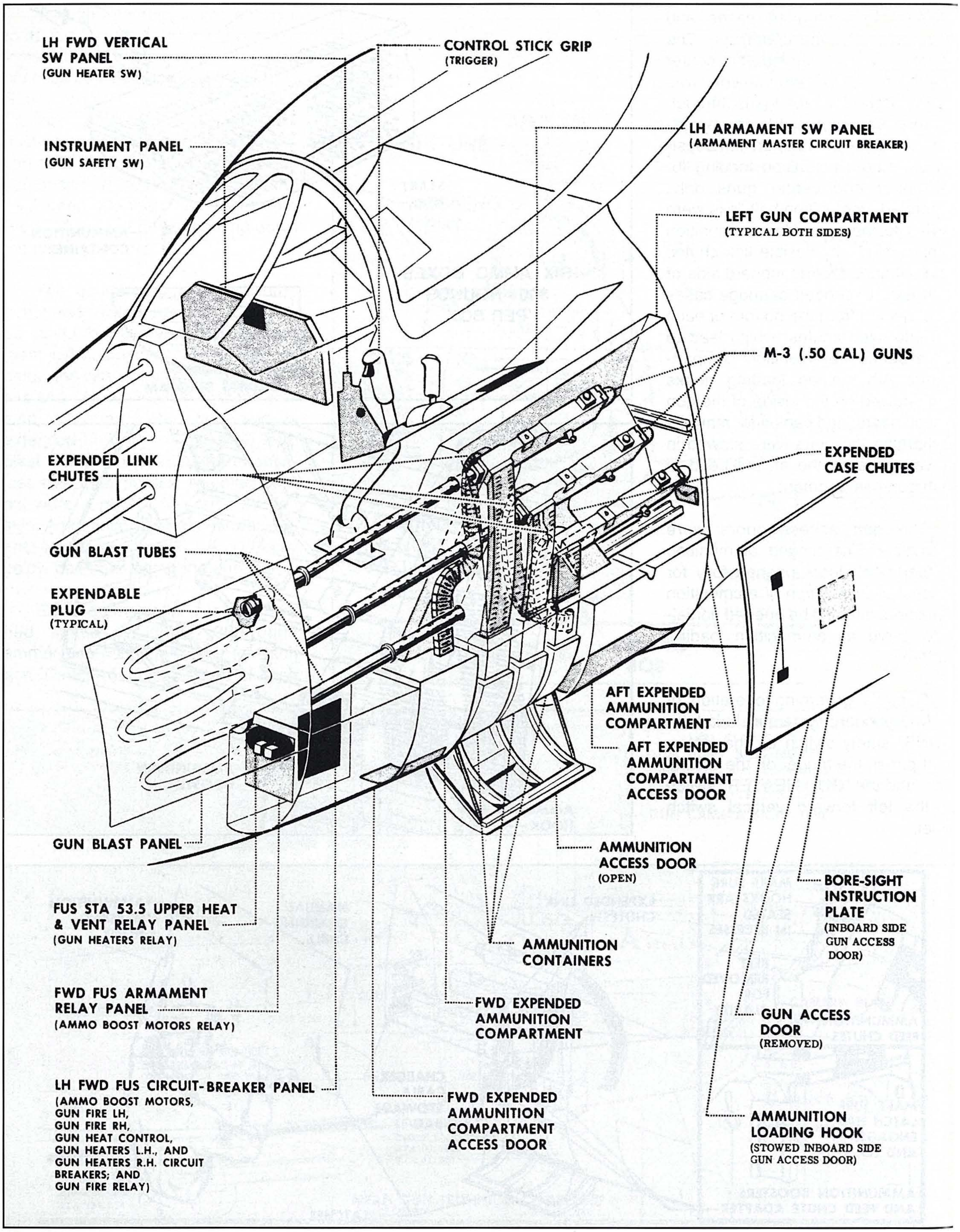
Controls governing operation of the M-3 gunnery system included the "GUNS" safety switch on the instrument panel, the trigger on the control stick, and the "GUN HEATER" switch on the left forward vertical switch panel.






MAKE SURE HOOKS ARE SEATED IN RECESSES
BELT REMOVED FOR CLARITY
AMMUNITION FEED CHUTES
MAKE SURE LATCH HAS ENGAGED AND LOCKED
AMMUNITION BOOSTERS AND FEED CHUTE ADAPTER
EXPENDED LINK CHUTES
MANUAL CHARGING CABLE
AMMUNITION LOADING HOOK
CHARGER CABLE STOWAGE BAG
LATCHES

M-3 SIX GUN .50 - CALIBER GUNNERY SYSTEM (52-1975/52-2089)

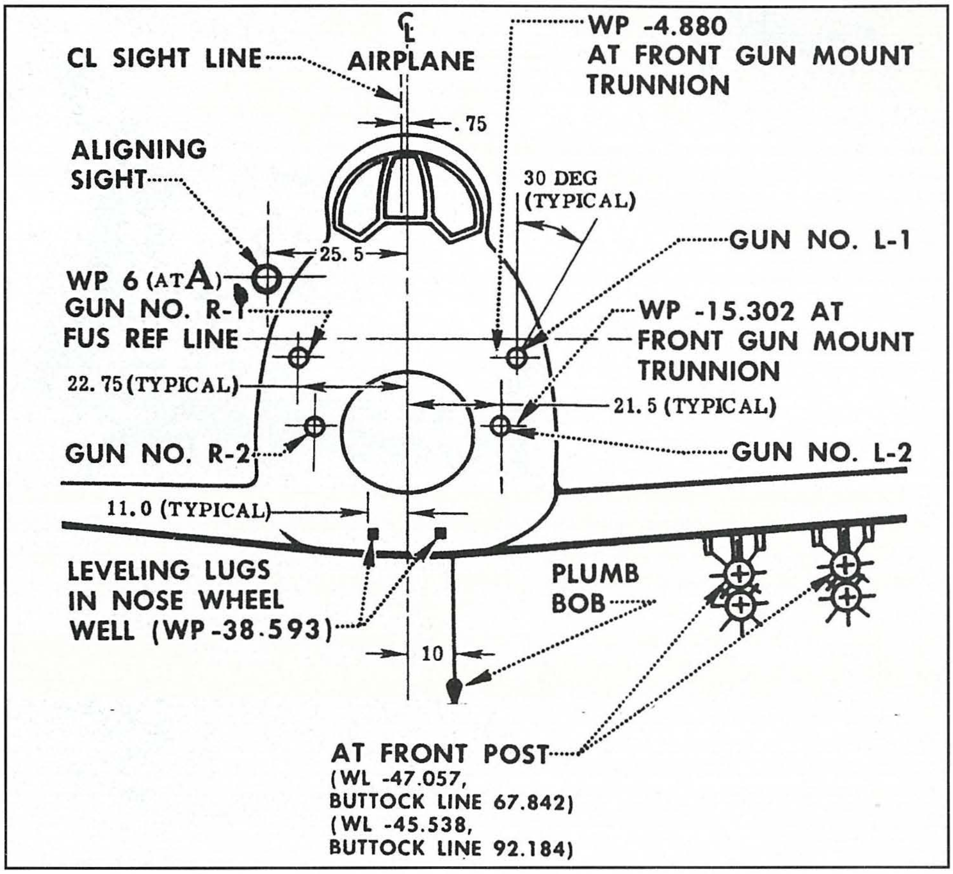

LH FWD VERTICAL SW PANEL (GUN HEATER SW)
CONTROL STICK GRIP (TRIGGER)
INSTRUMENT PANEL (GUN SAFETY SW)
LH ARMAMENT SW PANEL (ARMAMENT MASTER CIRCUIT BREAKER)
LEFT GUN COMPARTMENT (TYPICAL BOTH SIDES)
M-3 (.50 CAL) GUNS
EXPENDED LINK CHUTES
EXPENDED CASE CHUTES
GUN BLAST TUBES
EXPENDABLE PLUG (TYPICAL)
AFT EXPENDED AMMUNITION COMPARTMENT
AFT EXPENDED AMMUNITION COMPARTMENT ACCESS DOOR
GUN BLAST PANEL
AMMUNITION ACCESS DOOR (OPEN)
BORE-SIGHT INSTRUCTION PLATE (INBOARD SIDE GUN ACCESS DOOR)
FUS STA 53.5 UPPER HEAT & VENT RELAY PANEL (GUN HEATERS RELAY)
AMMUNITION CONTAINERS
FWD FUS ARMAMENT RELAY PANEL (AMMO BOOST MOTORS RELAY)
FWD EXPENDED AMMUNITION COMPARTMENT
GUN ACCESS DOOR (REMOVED)
LH FWD FUS CIRCUIT-BREAKER PANEL (AMMO BOOST MOTORS, GUN FIRE LH, GUN FIRE RH, GUN HEAT CONTROL, GUN HEATERS L.H., AND GUN HEATERS R.H. CIRCUIT BREAKERS; AND GUN FIRE RELAY)
FWD EXPENDED AMMUNITION COMPARTMENT ACCESS DOOR
AMMUNITION LOADING HOOK (STOWED INBOARD SIDE GUN ACCESS DOOR)

M-39 FOUR GUN 20mm CANNON GUNNERY SYSTEM (F-86H-5 & LATER)

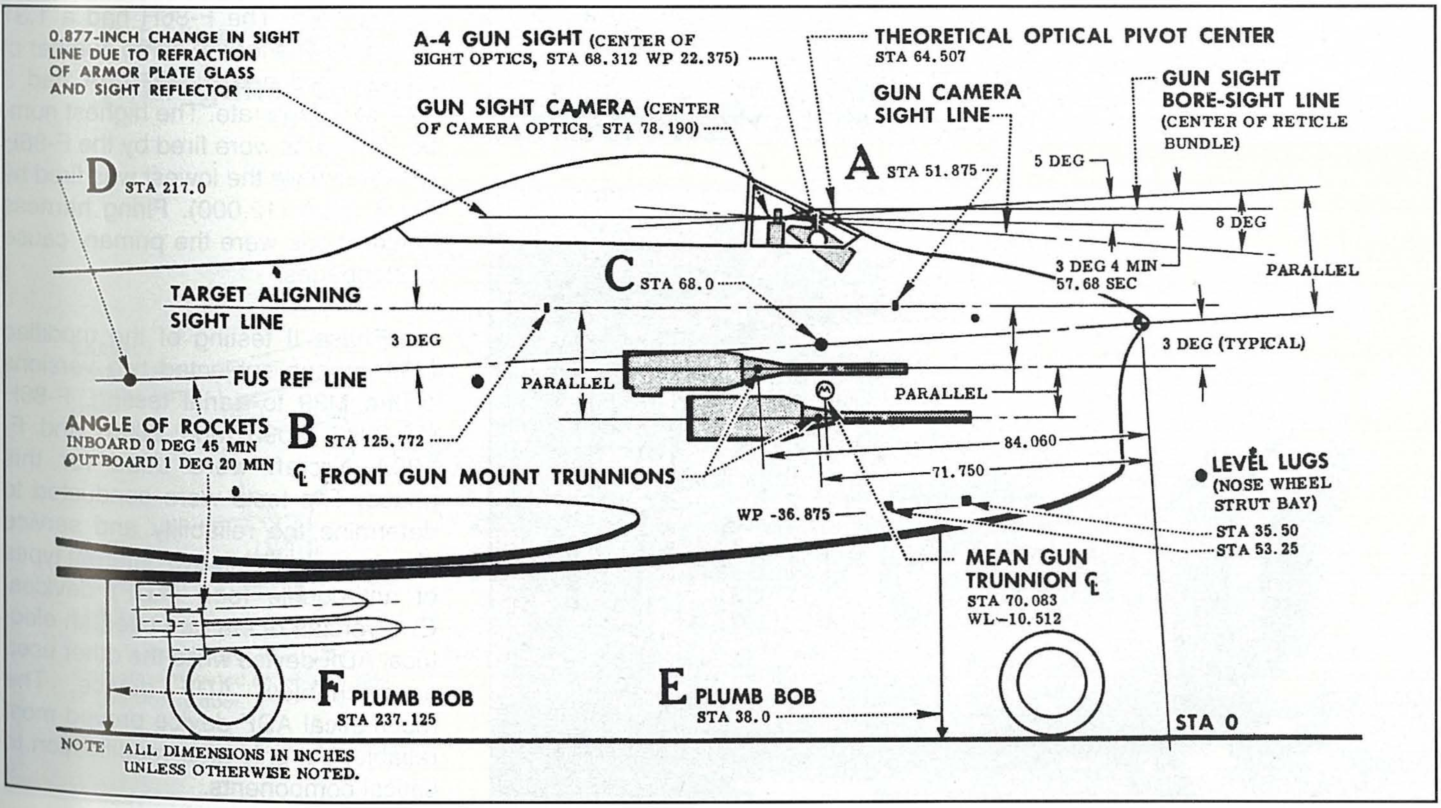
CANNON DEVELOPMENT

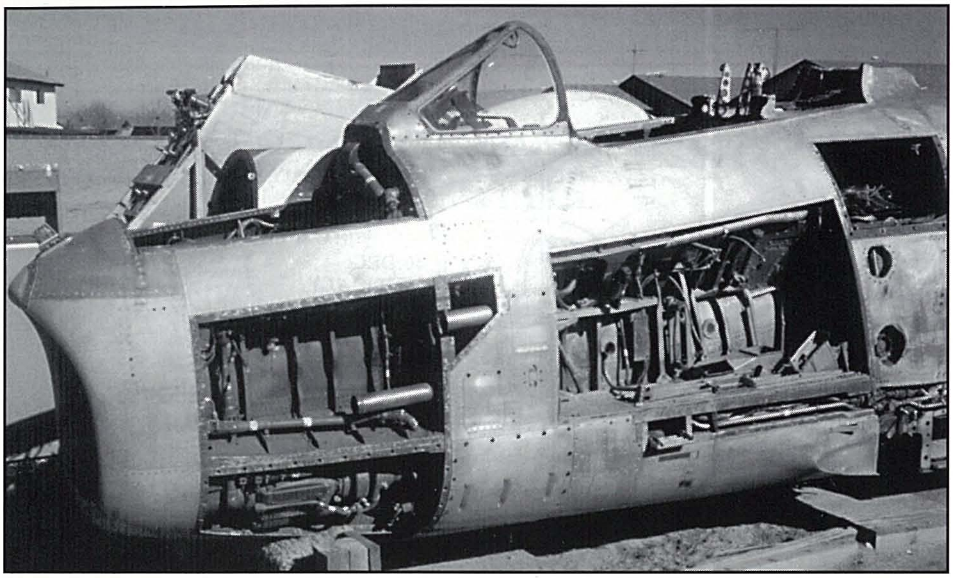
The M39 cannon (originally known as the T-160) underwent an extensive development. The standard gun weighed 179 lbs, was belt fed, gas operated and electrically fired. Cyclic rate-of-fire ranged from 1,500 to 1,700 rounds per minute.

The version of the gun manufactured by the Pontiac Division of the General Motors Corporation had proved unreliable during tests by various agencies, including the Air Force and those representing the manufacturer. Service life was too short. A contract was negotiated with Ford Motor Company to modify the standard M39 gun to improve reliability and extend its service life.

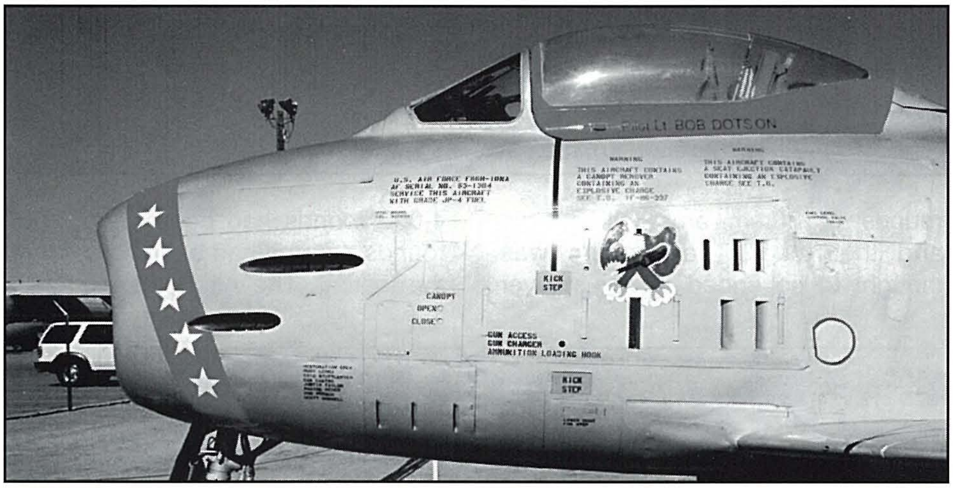


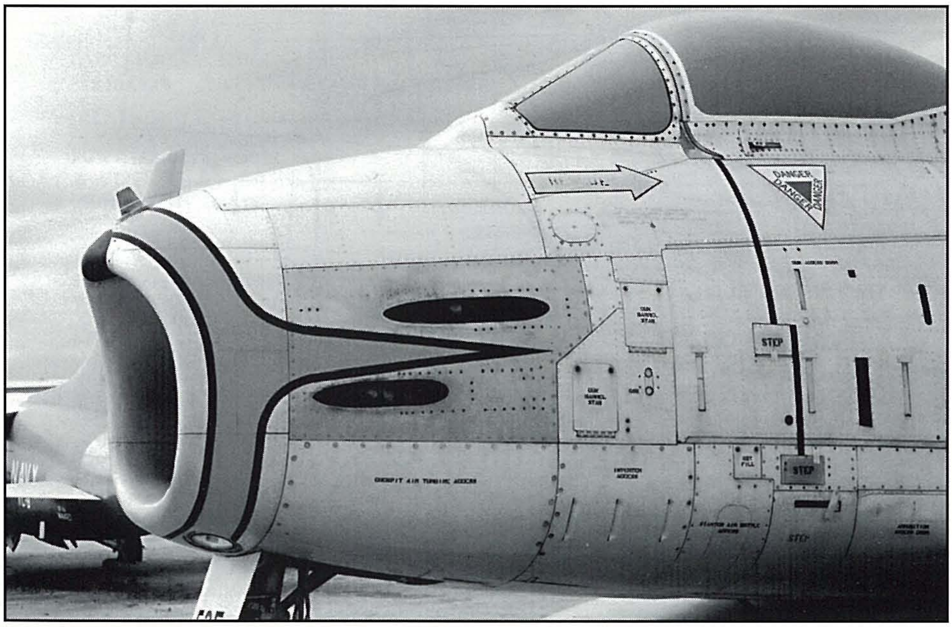
A May 1955 report, titled "Engineering Flight Test Evaluation of the M39 Gun (Ford Modified)" indicates modified guns were an improvement over the previous version, but were still not satisfactory enough to warrant a production go-ahead. The modified guns experienced 1.1 stoppages for each 1,000 rounds of 20mm ammunition fired and their useful service life was thought to be ended after just over 4,000 rounds had been fired. 5,000 rounds per gun had been fired during the testing. The Air Force wanted a


0.877-INCH CHANGE IN SIGHT LINE DUE TO REFRACTION OF ARMOR PLATE GLASS AND SIGHT REFLECTOR
A-4 GUN SIGHT (CENTER OF SIGHT OPTICS, STA 68.312 WP 22.375)
THEORETICAL OPTICAL PIVOT CENTER STA 64.507
GUN SIGHT CAMERA (CENTER OF CAMERA OPTICS, STA 78.190)
GUN CAMERA SIGHT LINE
GUN SIGHT BORE-SIGHT LINE (CENTER OF RETICLE BUNDLE)
D STA 217.0
A STA 51.875
5 DEG
8 DEG
3 DEG 4 MIN 57.68 SEC
PARALLEL
TARGET ALIGNING SIGHT LINE
C STA 68.0
3 DEG
3 DEG (TYPICAL)
FUS REF LINE
PARALLEL
PARALLEL
ANGLE OF ROCKETS INBOARD 0 DEG 45 MIN OUTBOARD 1 DEG 20 MIN
B STA 125.772
℄ FRONT GUN MOUNT TRUNNIONS
84.060
71.750
LEVEL LUGS (NOSE WHEEL STRUT BAY)
WP -36.875
STA 35.50
STA 53.25
MEAN GUN TRUNNION ℄ STA 70.083 WL-10.512
F PLUMB BOB STA 237.125
E PLUMB BOB STA 38.0
STA 0
NOTE ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED.



Above, F-86H forward fuselage with gun access doors removed. Note the stainless steel blast tubes. (Ginter 1978) Below, F-86H-10 forward fuselage. Note the six large 20mm gun compartment vent slits on the gun compartment door and the three vent slits on the ammo compartment door. (Ginter) Bottom, F-86H forward fuselage featuring stainless steel 20mm blast door panel. (Ginter)





service life of 5,000 rounds fired.

Ten modified guns were received from Ford Motor Company and each had been fired prior to being sent to the Air Force Armament Center. Eight of these guns were used during aerial evaluation while one was used for ground firing and the remaining gun was placed in standby status and was to be a spare parts source.

One F-86F, one F-86H (serial unknown) and two F-100A aircraft were used for the tests. The guns were rotated among the three aircraft types and were fired in bursts lasting 2 to 3 seconds. 10 to 15 seconds elapsed between bursts.

Several major components had been modified, including the gun receiver, drum support, round retainer, drum shaft, slide assembly, electrical harness and feeder assembly. As suggested previously, the modification improved the gun's performance, but not to the desired extent.

92 aerial missions were flown, 37 of them using the F-86H, 40 with the F-86F and the remaining 15 with the F-100As. Interestingly, the F-86F suffered the lowest stoppage rate, coming in at 54 stoppages per 1,000 rounds fired. The F-86H had a 1.31 stoppage rate for the same number of rounds fired and the F-100A had a 2.02 stoppage rate. The highest number of rounds were fired by the F-86H (21,900) while the lowest was fired by the F-100A (12,000). Firing harness malfunctions were the primary cause of stoppages.

Phase II testing of the modified M39 cannon subjected two versions of the M39 to aerial testing. F-86H (52-2092, 2093, and 2096) and F-100A aircraft were used for this phase. The tests were conducted to determine the reliability and service life of guns utilizing two different types of anti-double feed (ADF) devices. One version of the gun used an electrical ADF device while the other used a mechanical ADF device. The mechanical ADF device proved most reliable, but only after modification to critical components.

Tests of the electrical ADF configured gun in the F-86H showed an average of 1,092 rounds fired per stoppage. The mechanical ADF configured gun produced an average of 2,815 rounds per stoppage in the F-86H and 3,762 rounds per stoppage in the F-100A.

While the tests showed a significant improvement in reliability, further modifications were recommended before the gun could be placed in production.

CONCURRENT GUN TESTING

While testing of the modified M39 guns was taking place in mid-1955, the F-86H itself was being evaluated to find problem areas associated with the M39 gun installation on that particular aircraft. The tests served to determine the reliability of the installation and familiarize operations and maintenance personnel with the system.

During the first 37 evaluation missions flown in the F-86H, cracks were discovered in the nose fairings, the heat and vent access door, the hydraulic and nose gear extension access door (not to be confused with the nose gear door) and blast panels. Repairs couldn't be successfully made and new components were developed. New components, among them new blast panels, appeared to solve the problems. Further testing was conducted to establish whether these were dependable.

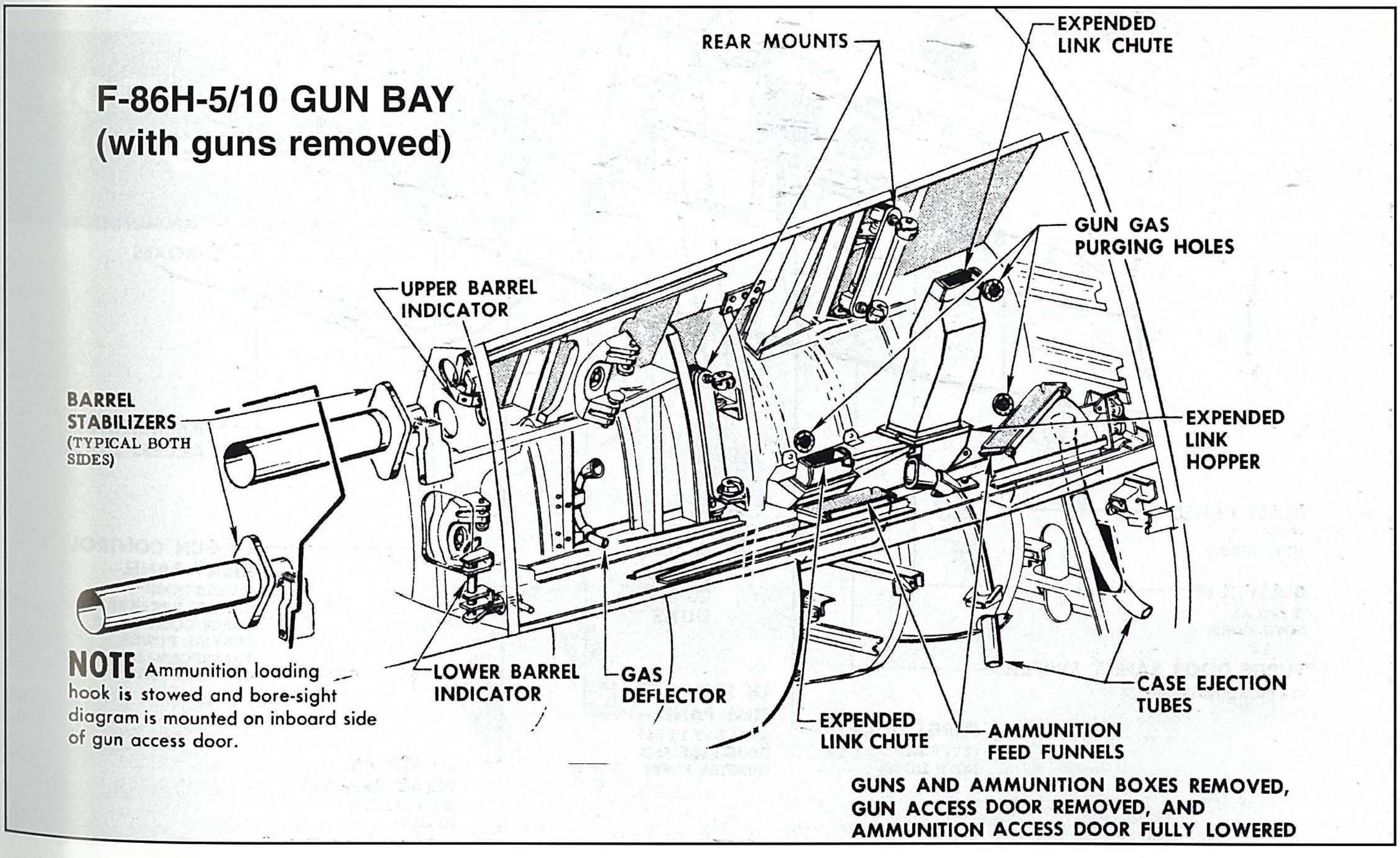
Initially, there were problems with the gun bay purge system not adequately expelling gun gasses from the bays. The potential for explosions in the bays made modifications necessary and during the first phase of testing certain restrictions were imposed, impeding completion of the tests. By the time the second phase of testing began, the purge system problem had been satisfactorily resolved.

During the ground firing phase of the second series of tests, two gun stoppages were caused by link jams in the ammunition feeder; one was caused by a depressed firing pin. Installation stoppages included one caused by ammunition binding in the feed chute and three caused by link jams in the link ejection chute.

During the aerial phase of testing, no compressor stalls or engine flameouts were noted, Five stoppages occurred and were attributed to the gun installation.

After appropriate modifications were made and test missions flown to establish reliability of the fixes, the F-86H with the M39 gun system was found to be reliable and the guns had no adverse affect on the aircraft structure. Compressor stalls and engine flameouts were not encountered and were not a matter for concern. The gun projectile dispersion pattern was deemed satisfactory. The gun installation was found to be easily serviced; ammunition could be loaded by two men and no special equipment was required. Access to the guns and gun barrels was considered adequate. Expended links could be easily removed from the aircraft and the ammunition feed and case ejection systems were deemed satisfactory, though the link ejection chutes for the upper guns were classified as unsatisfactory in their then current design.

Two ammunition boxes carrying 150 rounds for each gun were located



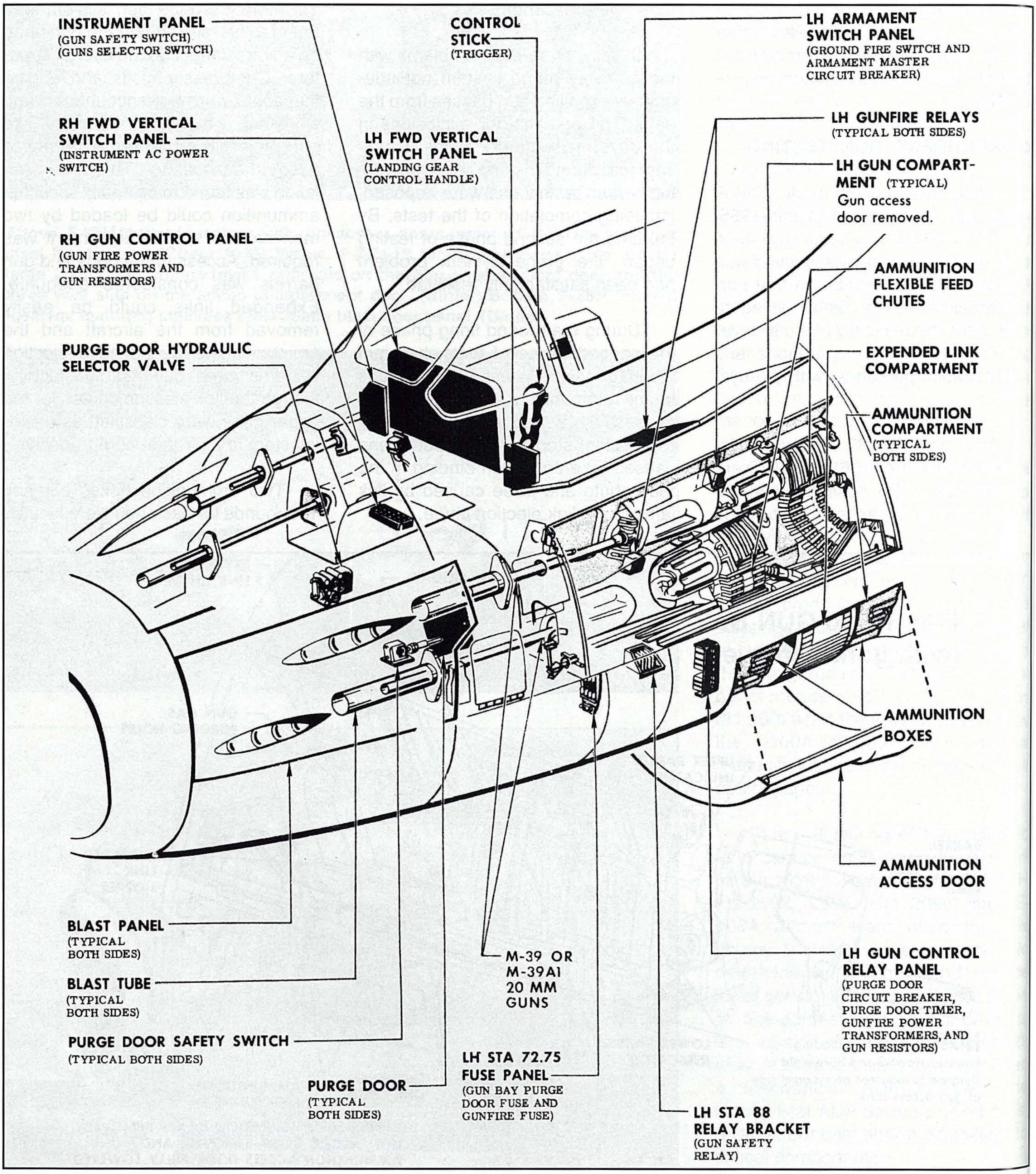
F-86H-5/10 GUN BAY (with guns removed)

NOTE Ammunition loading hook is stowed and bore-sight diagram is mounted on inboard side of gun access door.

GUNS AND AMMUNITION BOXES REMOVED, GUN ACCESS DOOR REMOVED, AND AMMUNITION ACCESS DOOR FULLY LOWERED

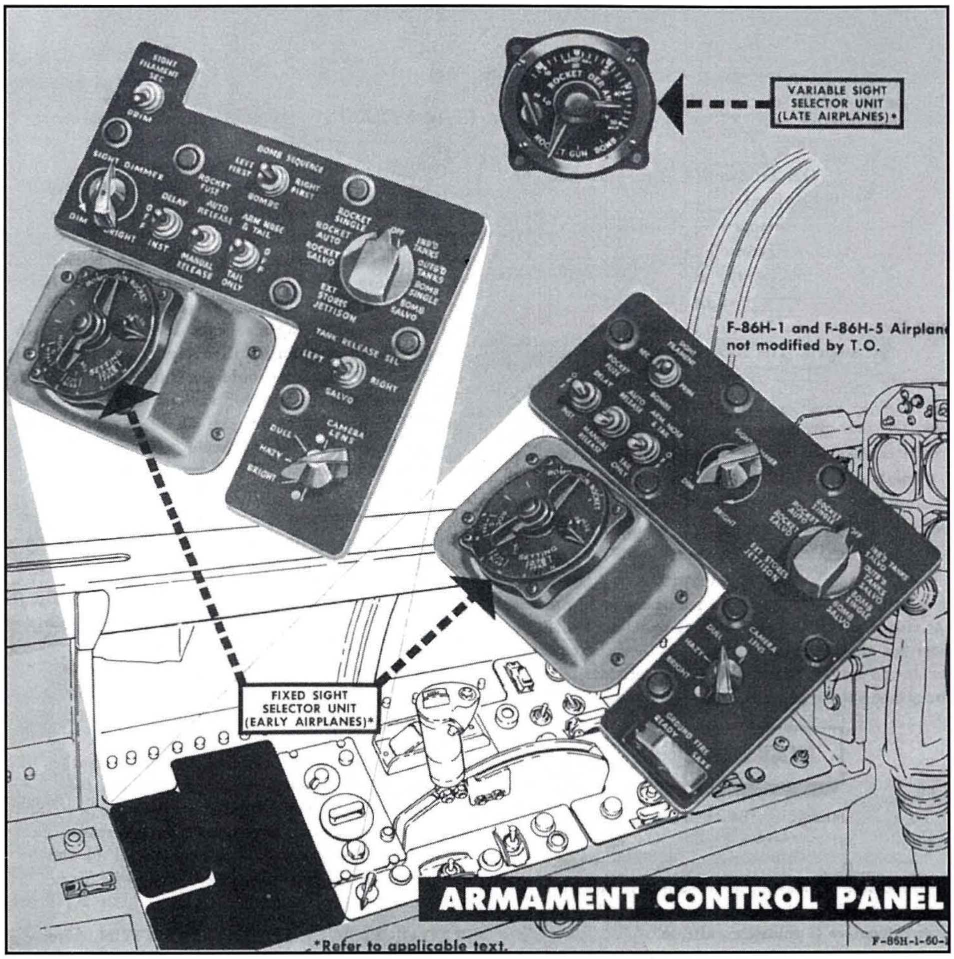
M-39 FOUR GUN 20mm CANNON GUNNERY SYSTEM (F-86H-5 & LATER)

immediately below each gun bay. Gun bay purge provisions include two hydraulically operated purge doors which open into the engine air inlet duct just forward of the gun bays, and a hydraulic selector valve for routing utility system hydraulic pressure to and from the purge door actuators. An electrically operated purge door timer controlled the opening and closing of the purge doors. The timer permitted the doors to remain open for a predetermined period after firing in order to completely clear the gun, ammunition, and expended link compartments of explosive gun gasses. Gunfire and operation of the purge system were initiated by the trigger.


INSTRUMENT PANEL (GUN SAFETY SWITCH) (GUNS SELECTOR SWITCH)
CONTROL STICK (TRIGGER)
LH ARMAMENT SWITCH PANEL (GROUND FIRE SWITCH AND ARMAMENT MASTER CIRCUIT BREAKER)
RH FWD VERTICAL SWITCH PANEL (INSTRUMENT AC POWER SWITCH)
LH FWD VERTICAL SWITCH PANEL (LANDING GEAR CONTROL HANDLE)
LH GUNFIRE RELAYS (TYPICAL BOTH SIDES)
LH GUN COMPARTMENT (TYPICAL) Gun access door removed.
RH GUN CONTROL PANEL (GUN FIRE POWER TRANSFORMERS AND GUN RESISTORS)
AMMUNITION FLEXIBLE FEED CHUTES
PURGE DOOR HYDRAULIC SELECTOR VALVE
EXPENDED LINK COMPARTMENT
AMMUNITION COMPARTMENT (TYPICAL BOTH SIDES)
AMMUNITION BOXES
AMMUNITION ACCESS DOOR
BLAST PANEL (TYPICAL BOTH SIDES)
M-39 OR M-39A1 20 MM GUNS
LH GUN CONTROL RELAY PANEL (PURGE DOOR CIRCUIT BREAKER, PURGE DOOR TIMER, GUNFIRE POWER TRANSFORMERS, AND GUN RESISTORS)
BLAST TUBE (TYPICAL BOTH SIDES)
PURGE DOOR SAFETY SWITCH (TYPICAL BOTH SIDES)
LH STA 72.75 FUSE PANEL (GUN BAY PURGE DOOR FUSE AND GUNFIRE FUSE)
PURGE DOOR (TYPICAL BOTH SIDES)
LH STA 88 RELAY BRACKET (GUN SAFETY RELAY)

F-86H ROCKET SYSTEM ON AIRCRAFT NOT MODIFIED TO T.O. 1F-86H-653

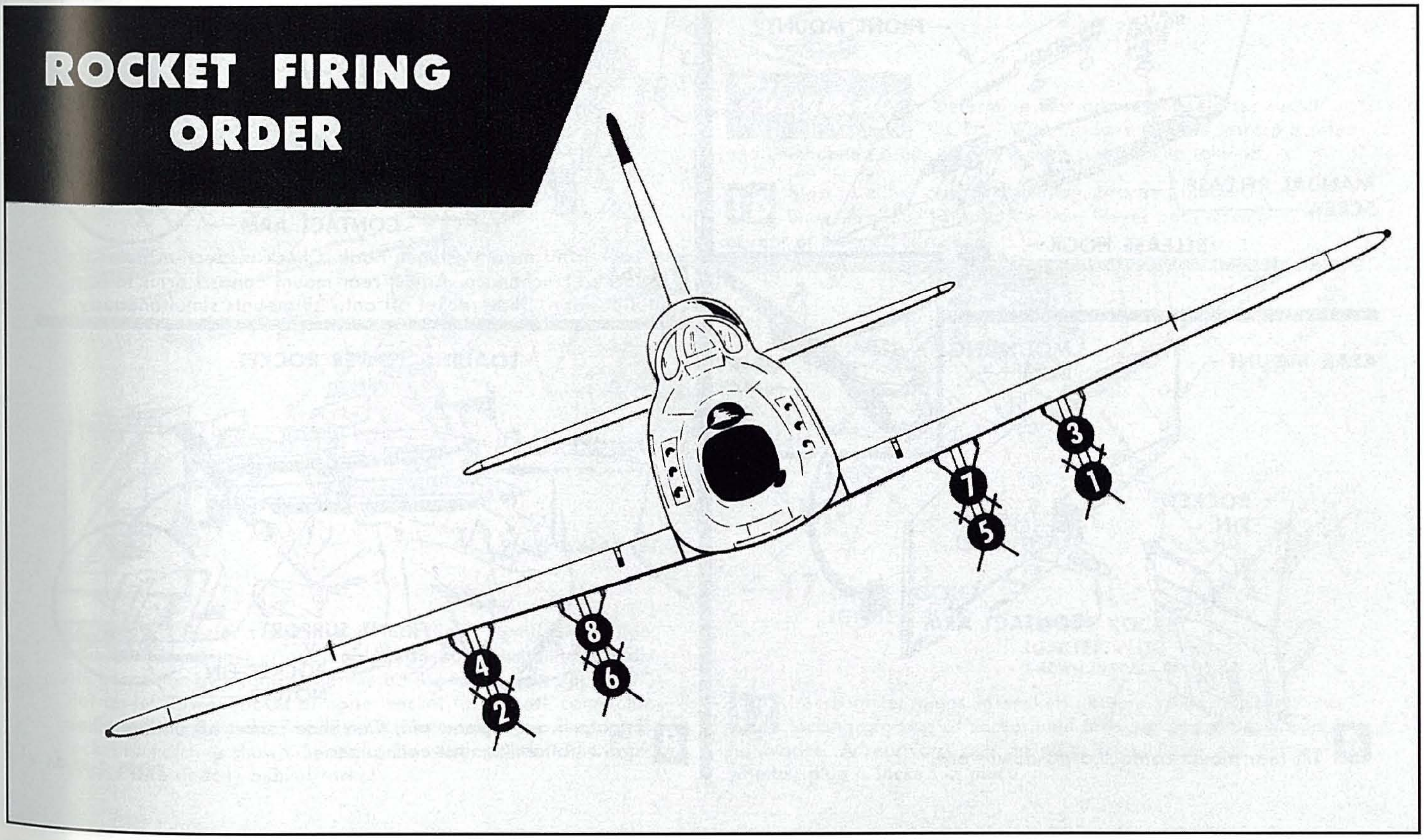
Four removable, zero-rail rocket launcher assemblies could be installed to permit mounting eight 5-inch HVA rockets or four high-performance air-to-ground rockets. The launchers were fitted to the lower surface of the wing outer panels, two on each side. Two HVA rockets, one mounted directly below the other, or one high-performance rocket was hung from each launcher assembly. The Type A-4 gun-bomb-rocket sight was used for aiming the rockets, and controls were provided for normal or emergency rocket release. The gun and strike cameras were operated automatically when rockets were fired. Normal rocket release, single or automatic, was done electrically by means of a rocket projector release, which controlled the firing sequence. Rockets could be jettisoned simultaneously and unarmed through either the master armament selector and the bomb-rocket release button, or the external stores jettison button. In an emergency, the rockets could be jettisoned mechanically by the emergency jettison handle.



ARMAMENT CONTROL PANEL

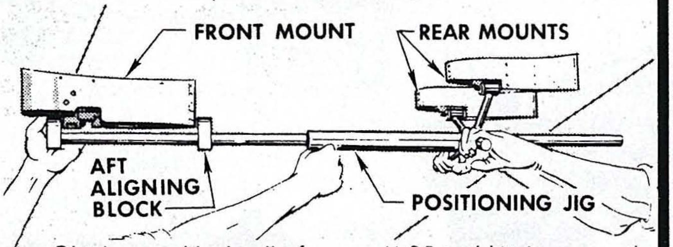
*Refer to applicable text.

ROCKET FIRING ORDER

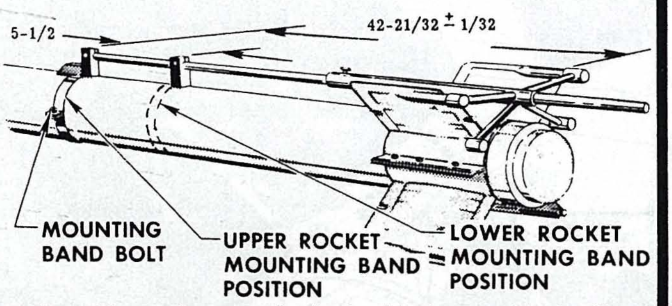


ROCKET LOADING

NOTE Ground airplane before loading rockets.

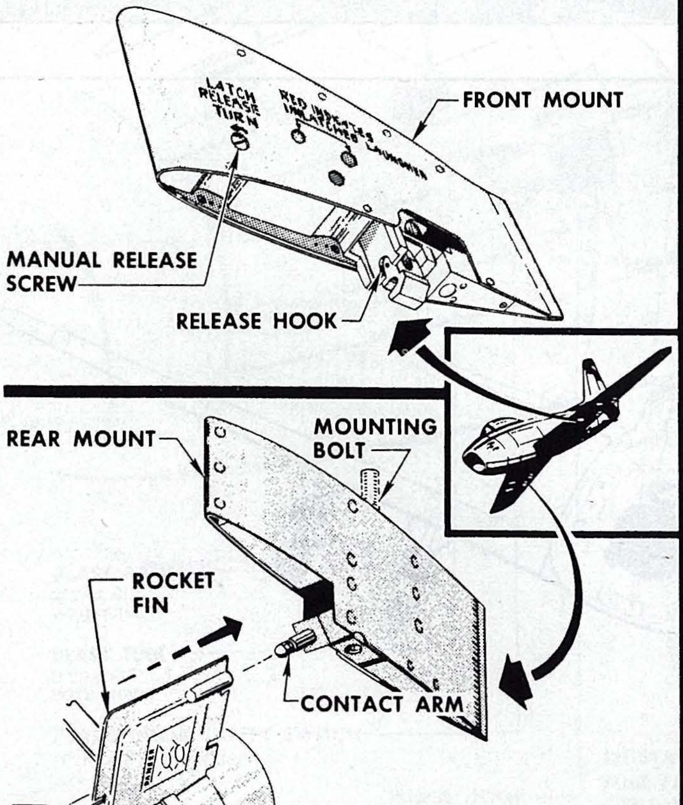


1 Obtain a positioning jig from an M-35 tool kit. Loosen and move aft aligning block on positioning jig to clear front mount. Then measure distance from front to rear mounts with jig.


5-1/2
42-21/32 ± 1/32
MOUNTING BAND BOLT
UPPER ROCKET MOUNTING BAND POSITION
LOWER ROCKET MOUNTING BAND POSITION

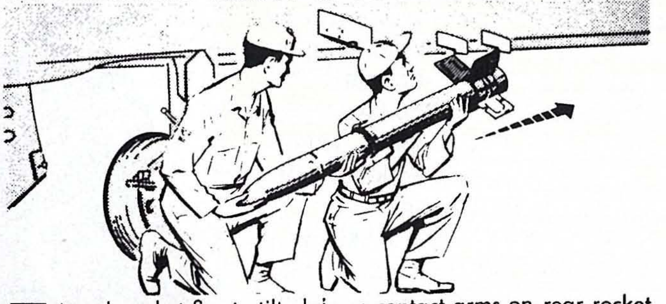
2 Reposition and secure aft aligning block on positioning jig. Position mounting bands on upper and lower rockets with jig and torque bolts to 33 foot-pounds.

3 Open front mounting release hook by turning manual release screw counterclockwise. Pull hook down.

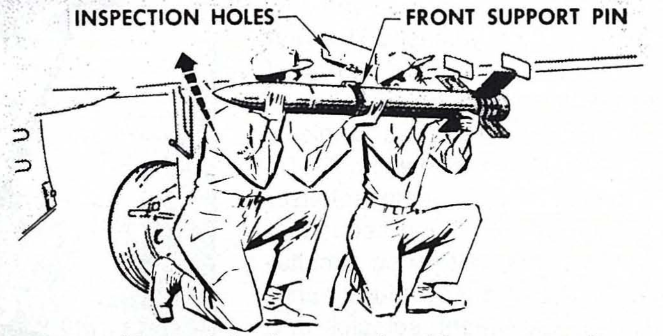


4 Tilt rear mount contact arms downward.

RECOMMENDED METHOD OF LOADING UPPER ROCKET

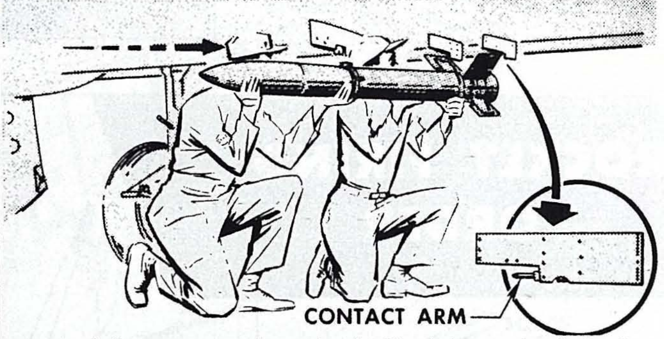


5 Attach rocket fins to tilted-down contact arms on rear rocket mounts.



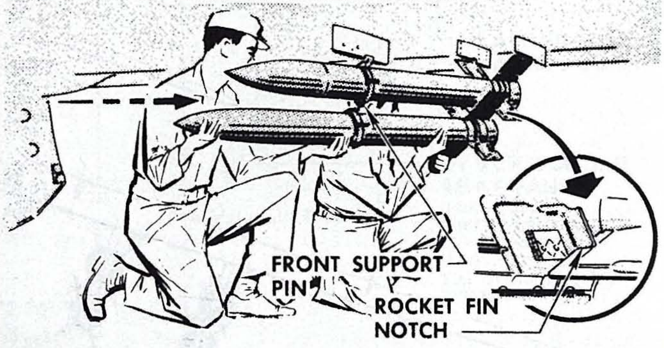
6 Swing front end of rocket upward until front support pin engages hook and locks front mount. Check inspection holes in front mount for a white indicator plate, indicating mechanism is locked. Red indicates an unlocked mechanism.

ALTERNATE METHOD OF LOADING UPPER ROCKET



7 Lock front mount release hook. Check inspection holes for locked mechanism. Adjust rear mount contact arms to horizontal position. Slide rocket aft onto all mounts simultaneously.

LOADING LOWER ROCKET

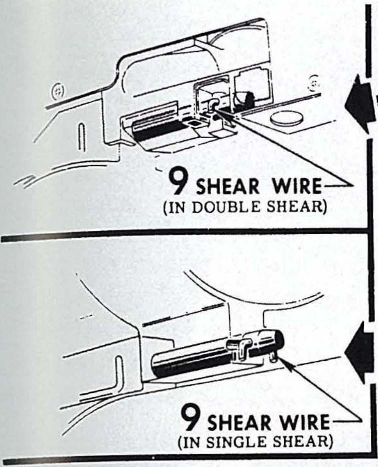


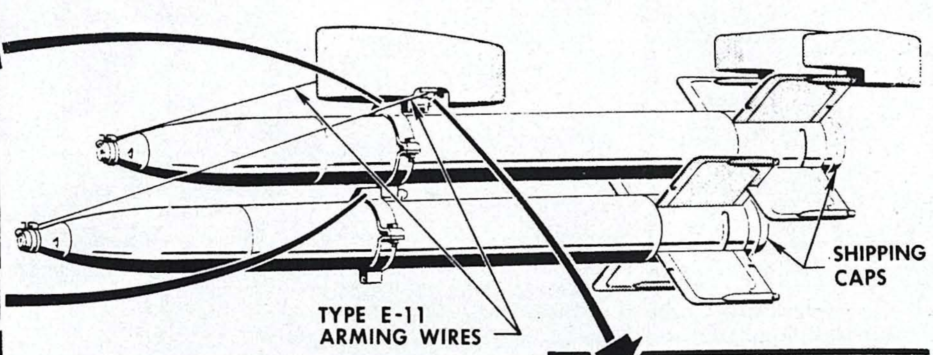
8 Engage front support pin; then slide rocket aft until notches in fins bottom against each other.

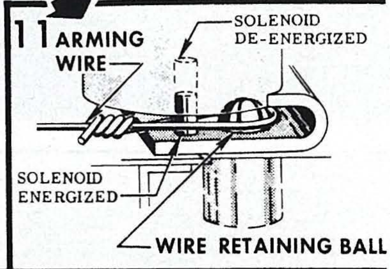
F-86H-2-68-3A

ROCKET LOADING

9 Install shear wires, using only wires attached to rockets.



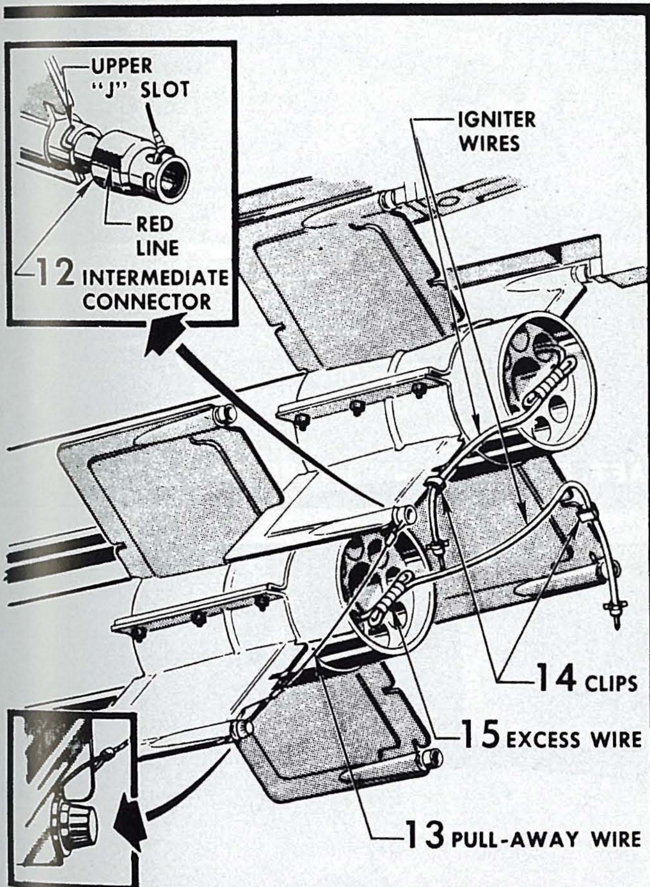




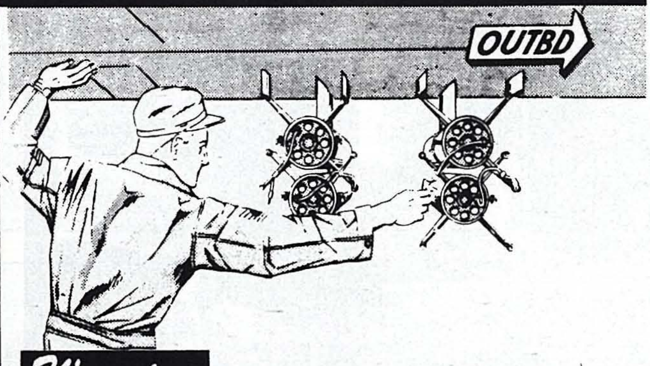
10 Perform rocket continuity check. (Refer to index for page number of applicable procedure.) Then remove shipping caps.

Warning To prevent accidental insertion of a rocket igniter plug during the rocket circuit continuity check, shipping caps must remain attached to rockets.

11 Attach arming wires by inserting loop ends into upper and lower arming solenoids. Then install free ends into clips on rocket nose, replacing fuse safety wires.

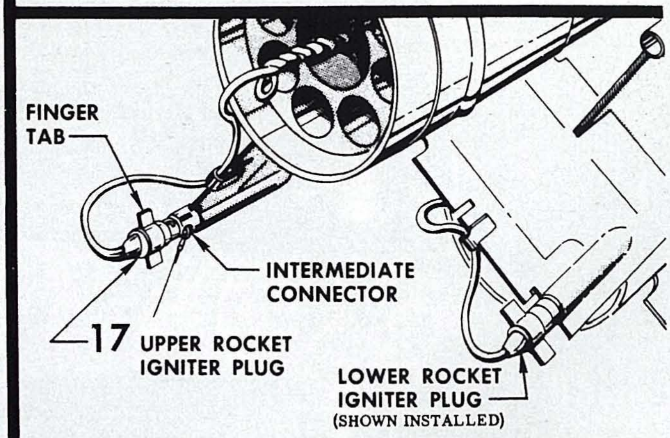


12-15 Perform rocket squib test. (Refer to index for page number of applicable procedure.) Install intermediate connector by aligning red line on connector with upper "J" slot on left lower socket of upper rocket fin. Rotate connector clockwise, aligning red line with fin. Place pull-away wire loop in rocket fin notch as shown. Secure igniter wires with fin clips. Tape excess wire directly behind rocket.



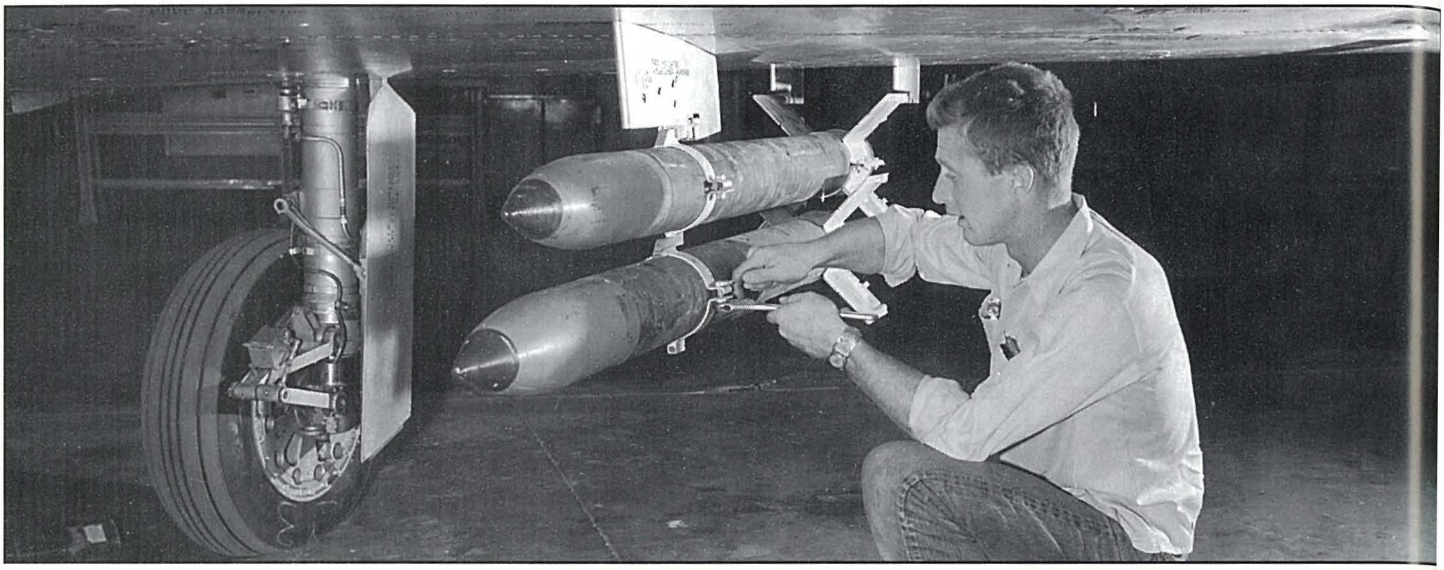
Warning Determine that armament selector switch is "OFF." With airplane pointed toward a safe and uninhabited area, plug in rockets just prior to take-off.

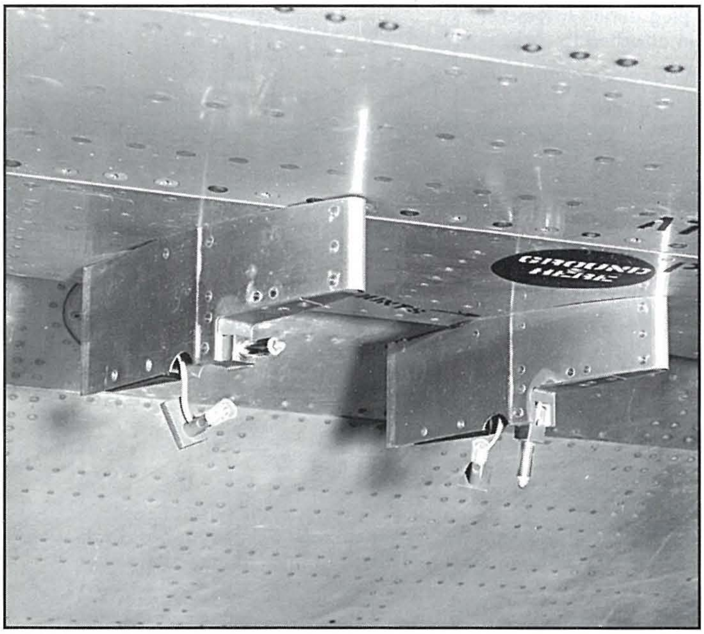
16 Start at either outboard station; proceed inboard and pass under fuselage to opposite side. Never pass directly in front or rear of plugged-in rockets.

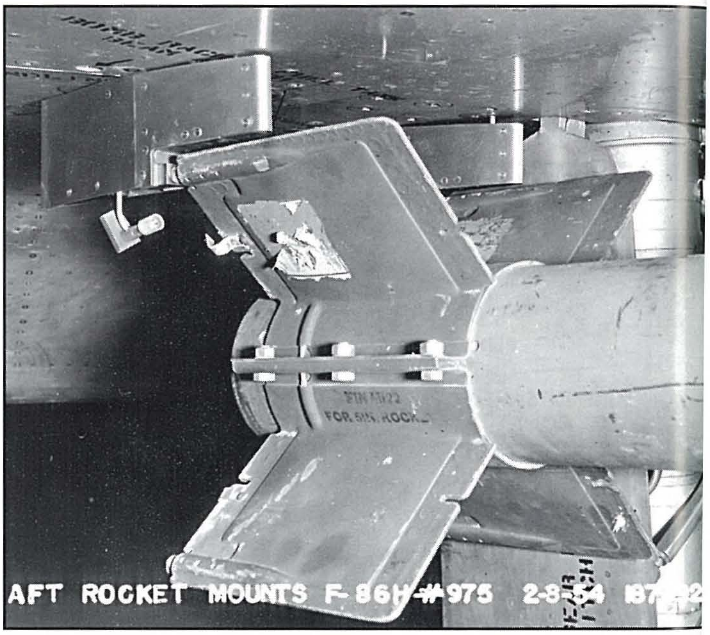


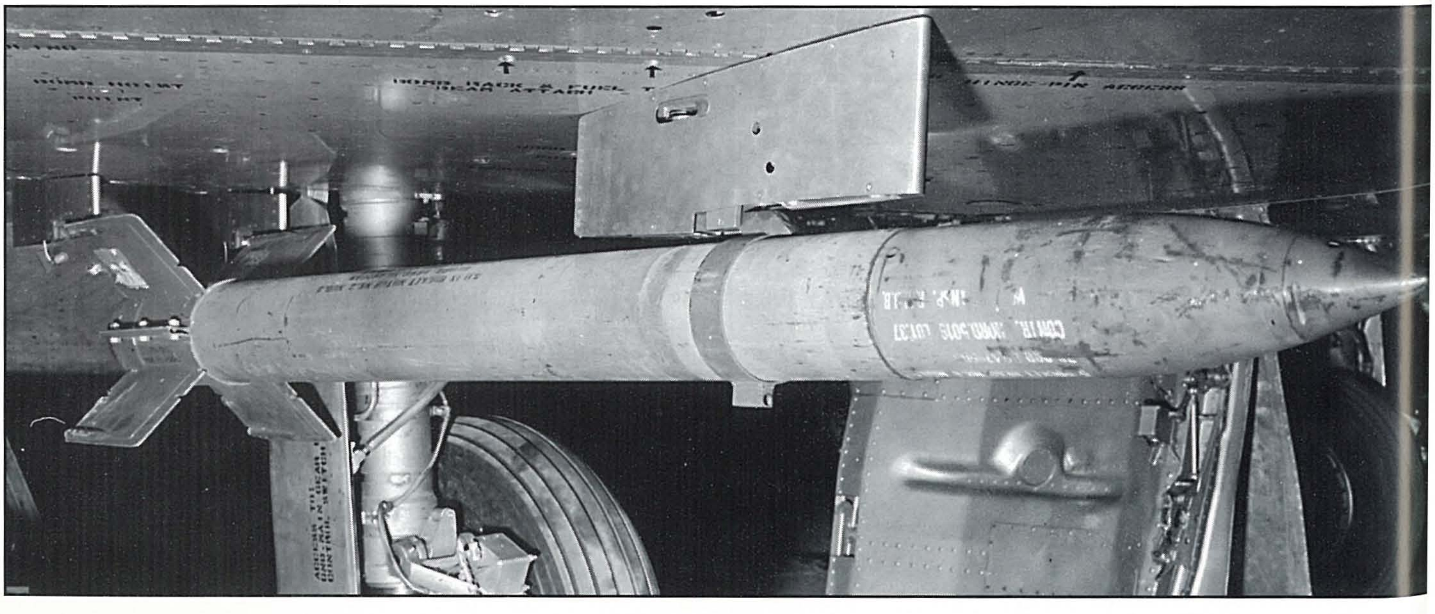
17 Insert igniter plugs in sockets. Rotate plugs clockwise into locking grooves of socket until tabs are parallel with rocket fin blades. A rearward pull on plugs (not cable) will determine whether plug is locked in place.

5" F-86H HIGH VELOCITY AERIAL ROCKET MOUNTING

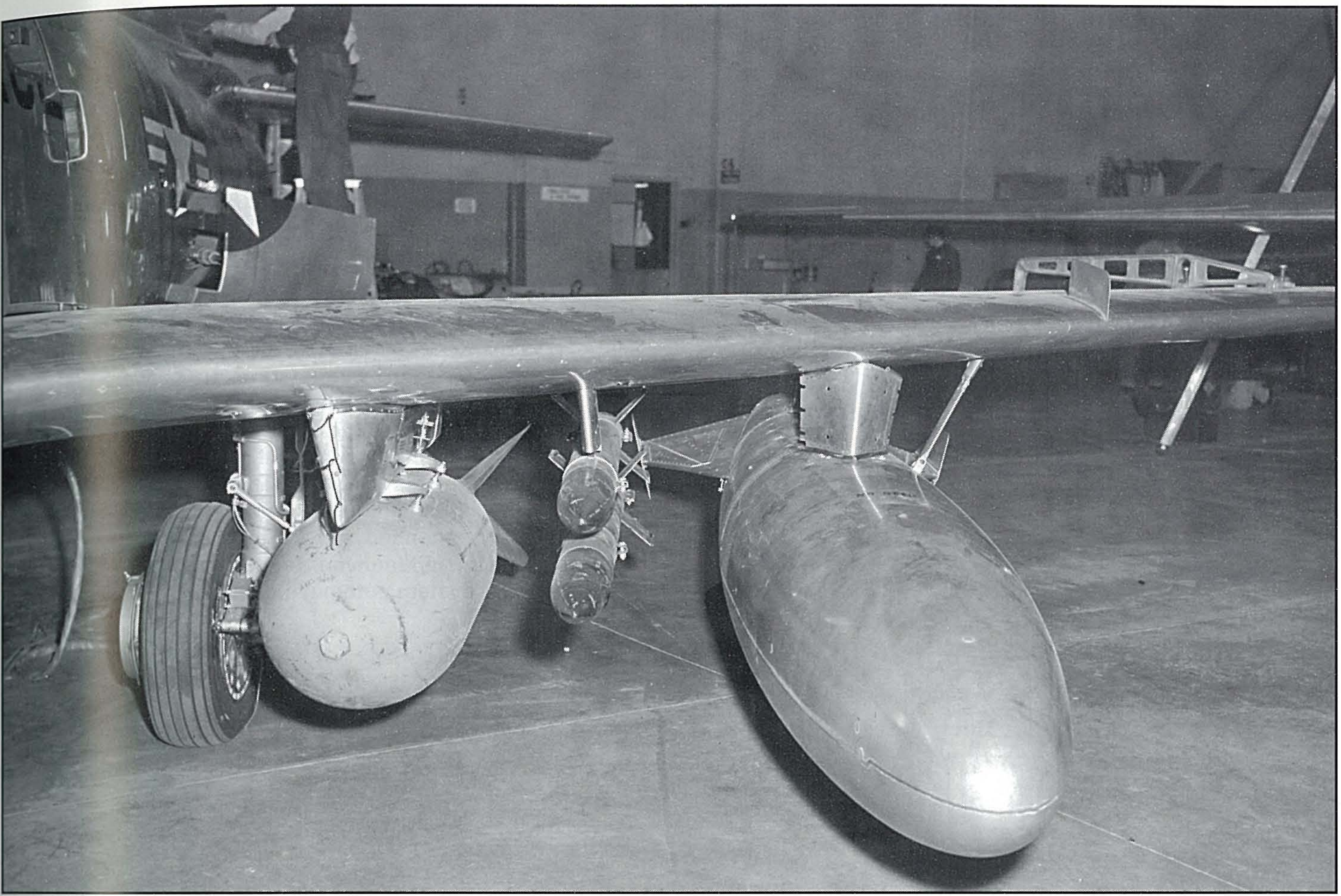


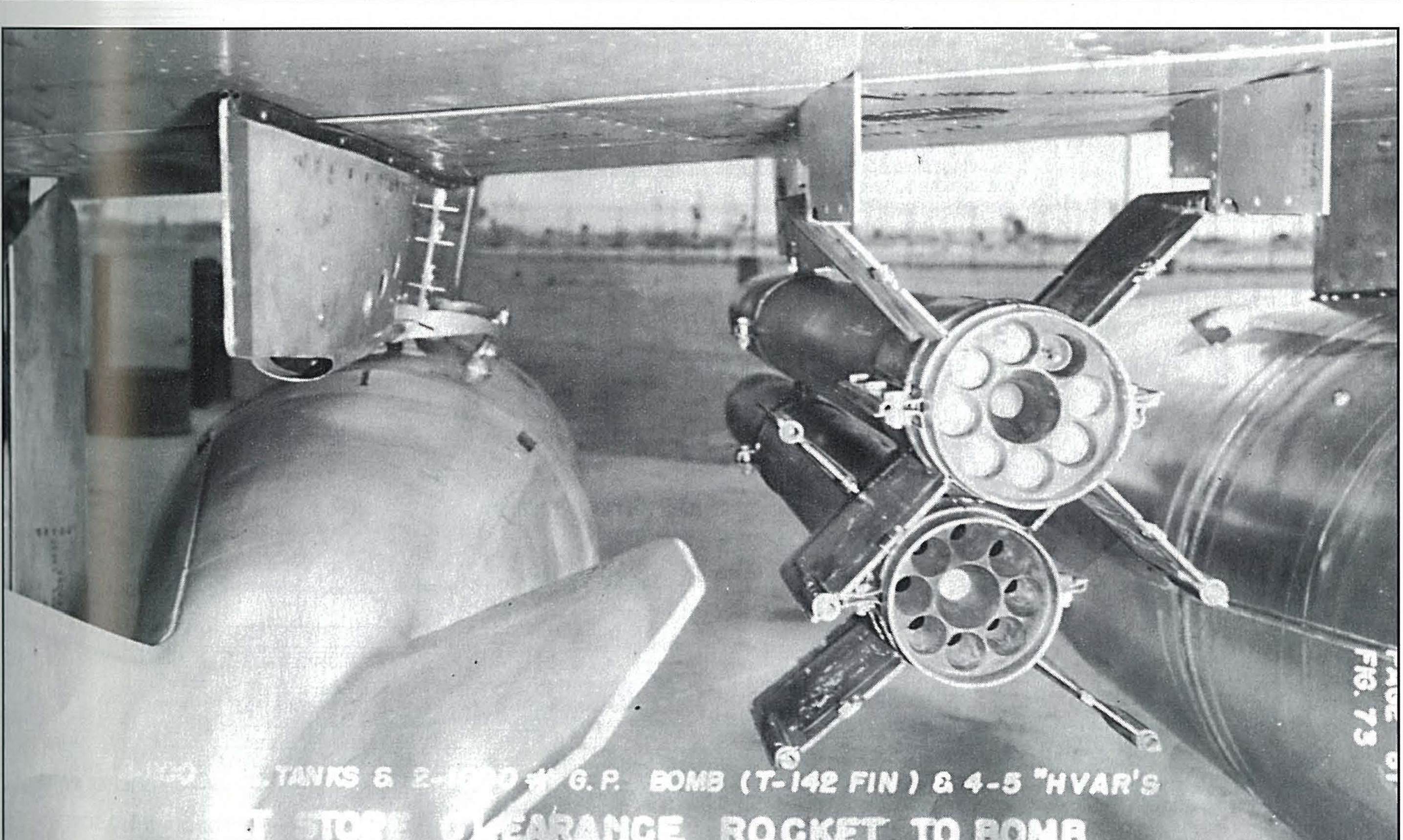




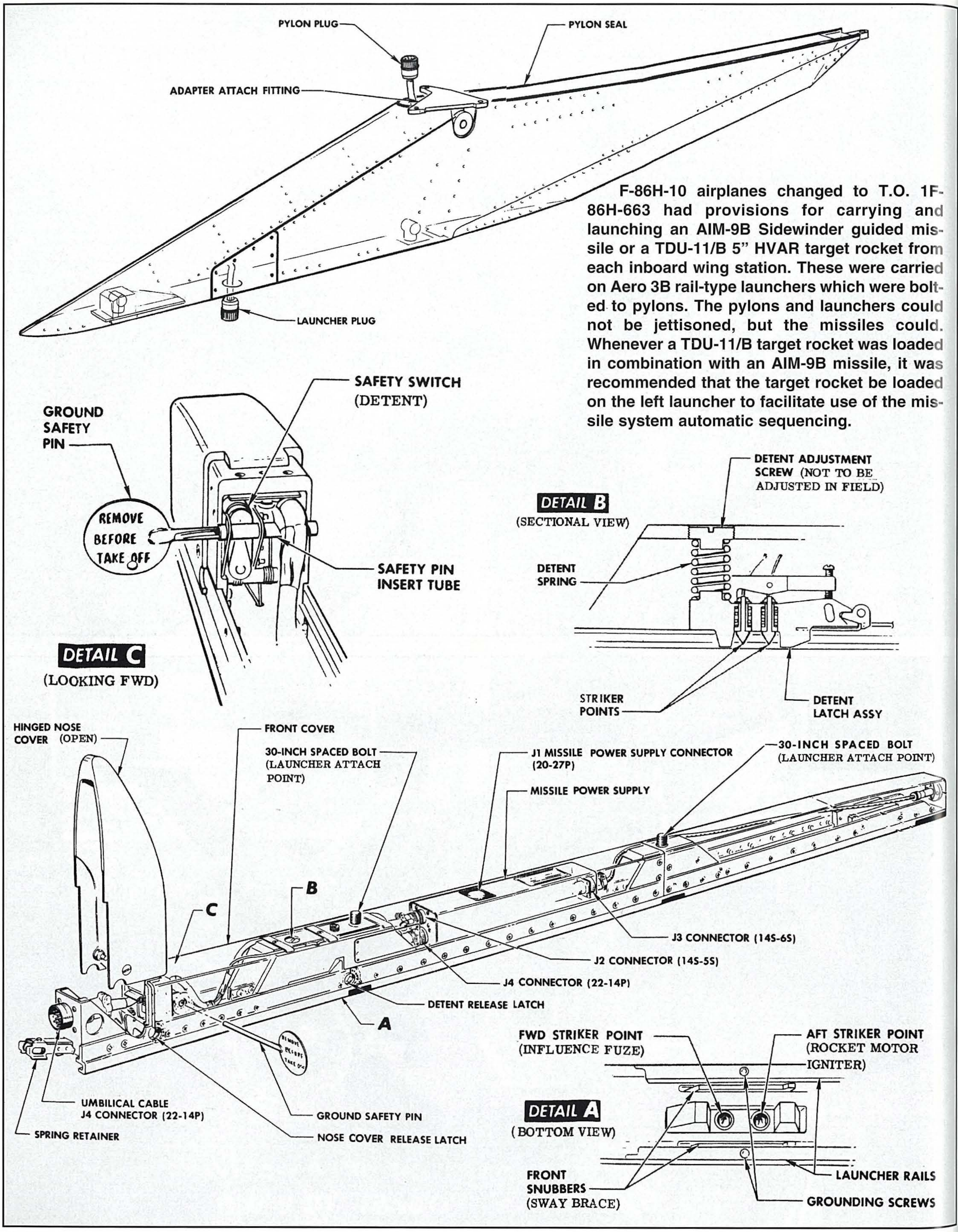


STORE CLEARANCE 200 GAL TANK, 5" HVAR, 1,000 LB BOMB (T-142 FIN)

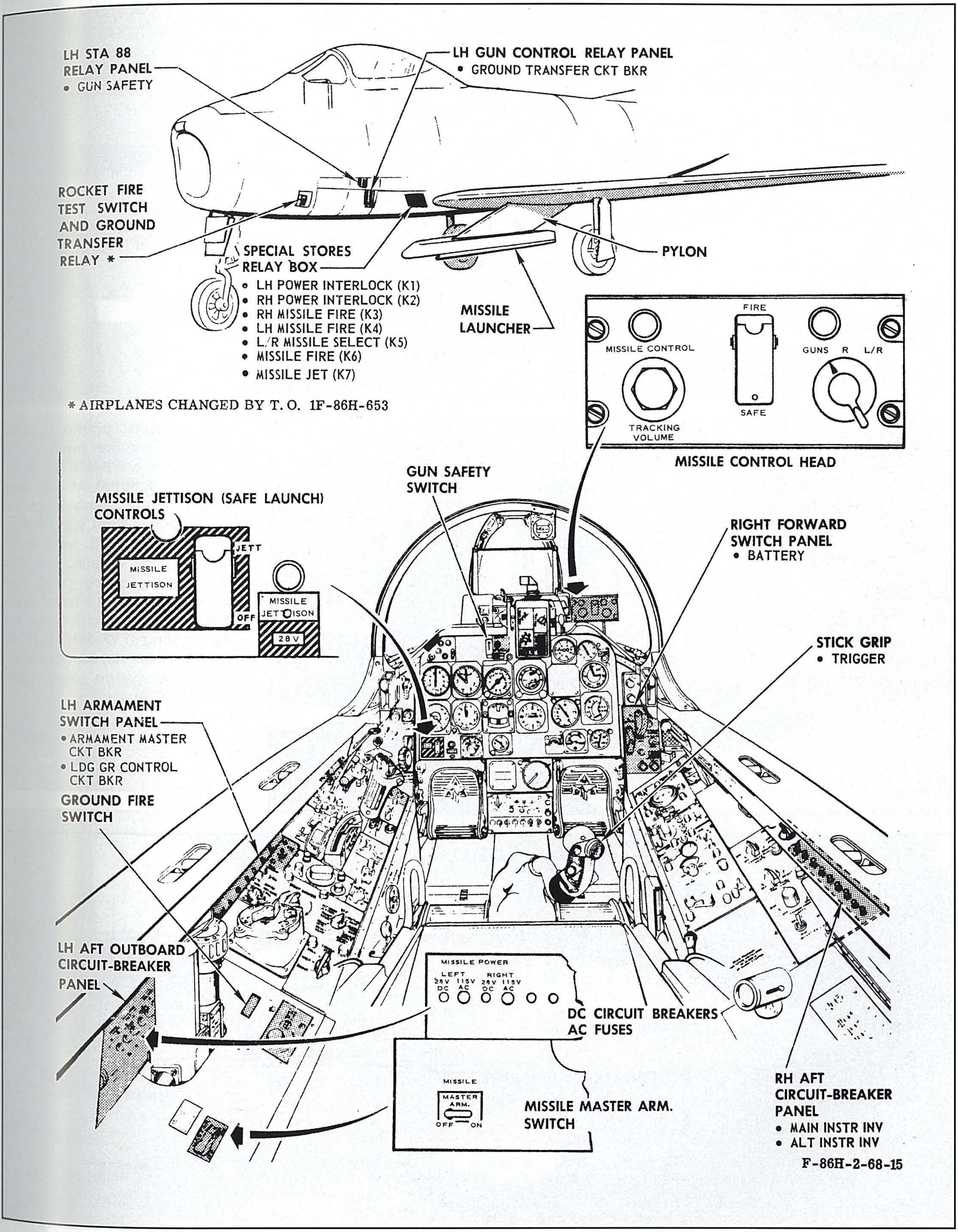



TANKS & 2-1000 # G.P. BOMB (T-142 FIN) & 4-5 "HVAR'S
STORE CLEARANCE ROCKET TO BOMB
FIG. 73

F-86H-10 airplanes changed to T.O. 1F-86H-663 had provisions for carrying and launching an AIM-9B Sidewinder guided missile or a TDU-11/B 5" HVAR target rocket from each inboard wing station. These were carried on Aero 3B rail-type launchers which were bolted to pylons. The pylons and launchers could not be jettisoned, but the missiles could. Whenever a TDU-11/B target rocket was loaded in combination with an AIM-9B missile, it was recommended that the target rocket be loaded on the left launcher to facilitate use of the missile system automatic sequencing.

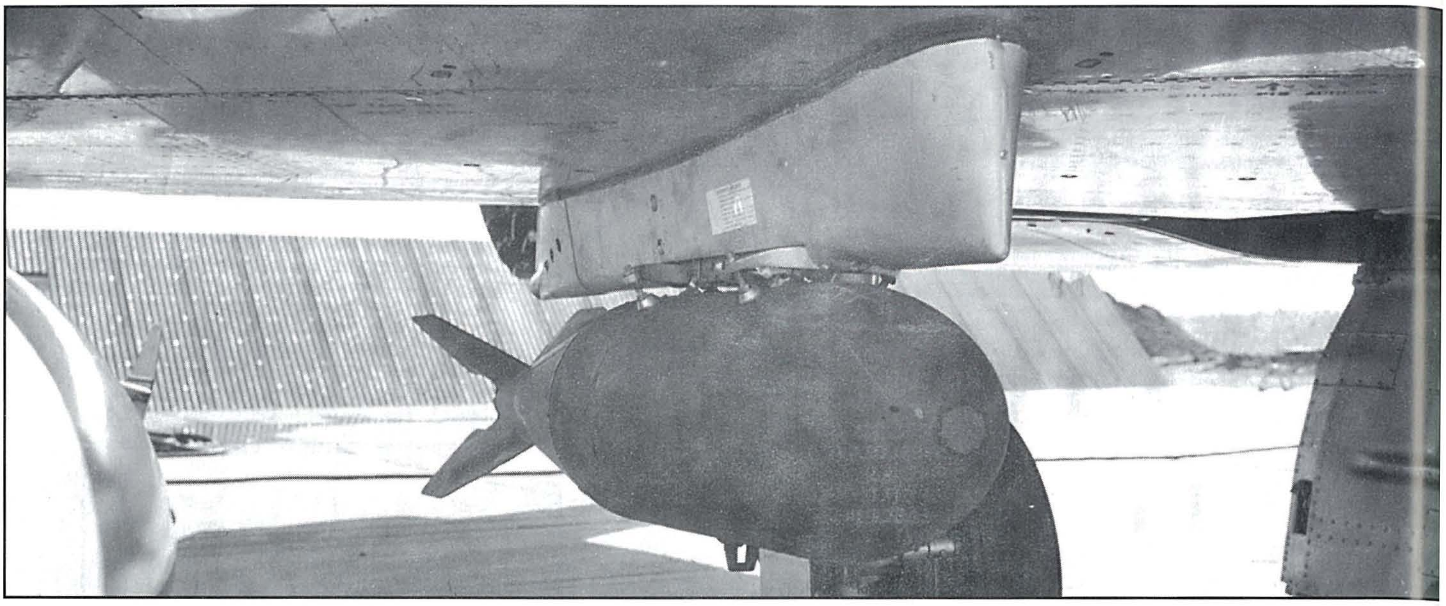


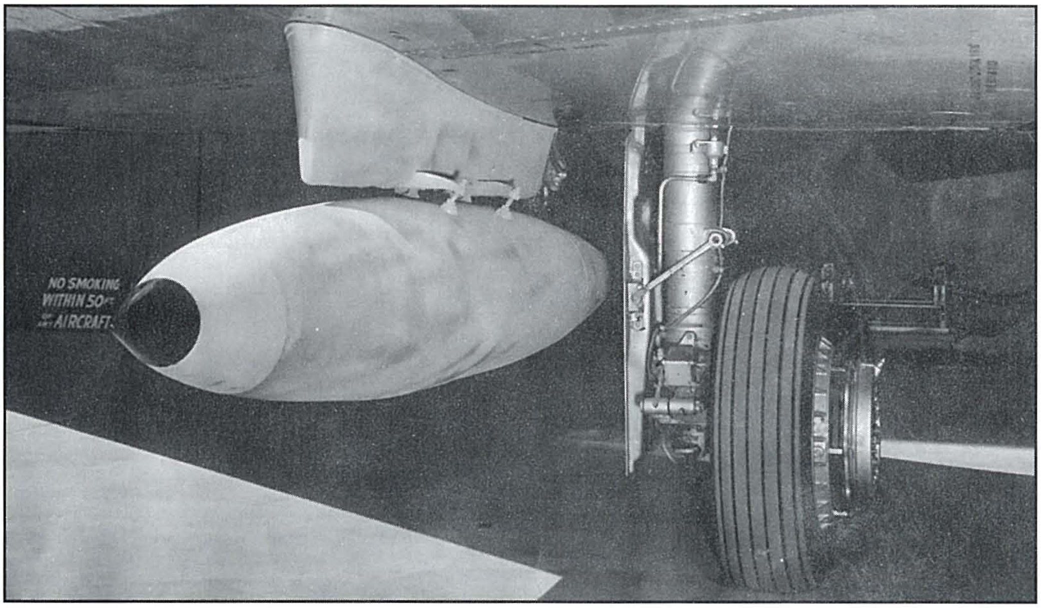
SIDEWINDER MISSILE SYSTEM EQUIPMENT LOCATIONS



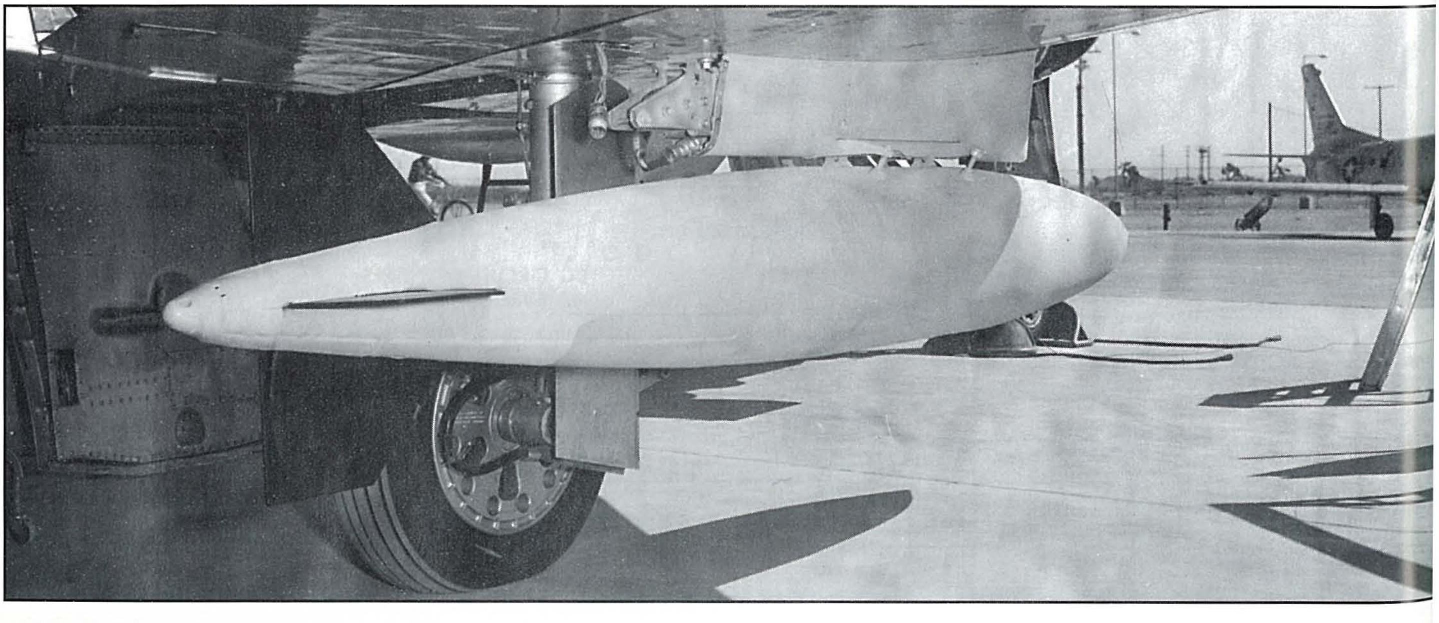
* AIRPLANES CHANGED BY T. O. 1F-86H-653

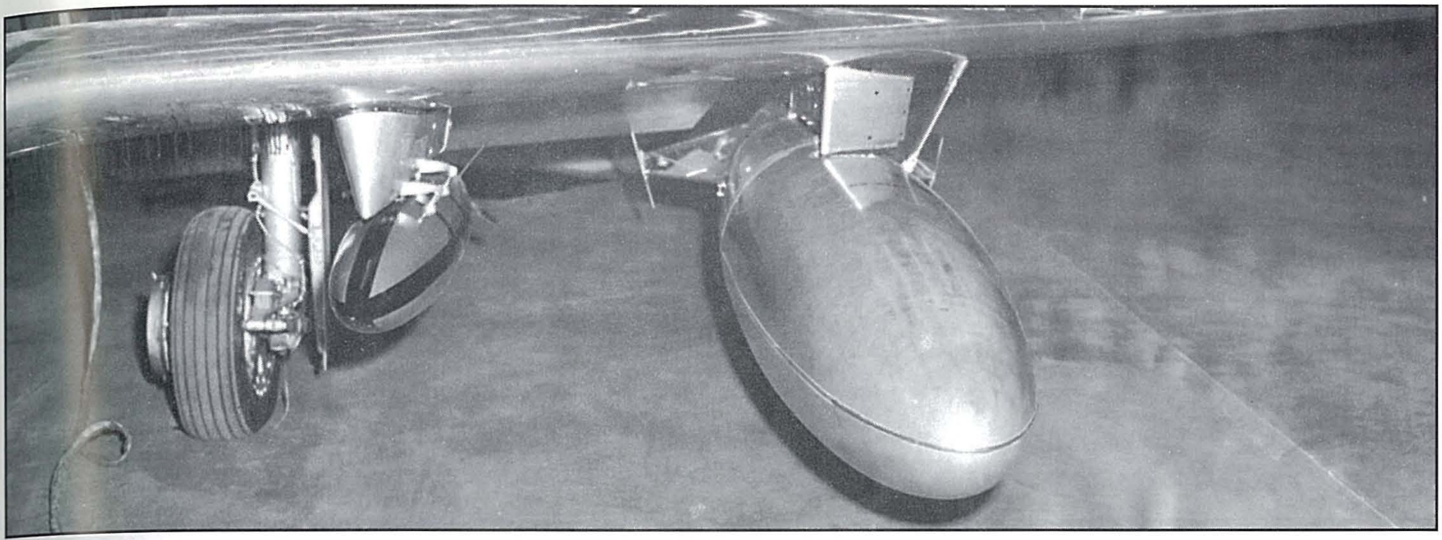
F-86H STORES LOADING

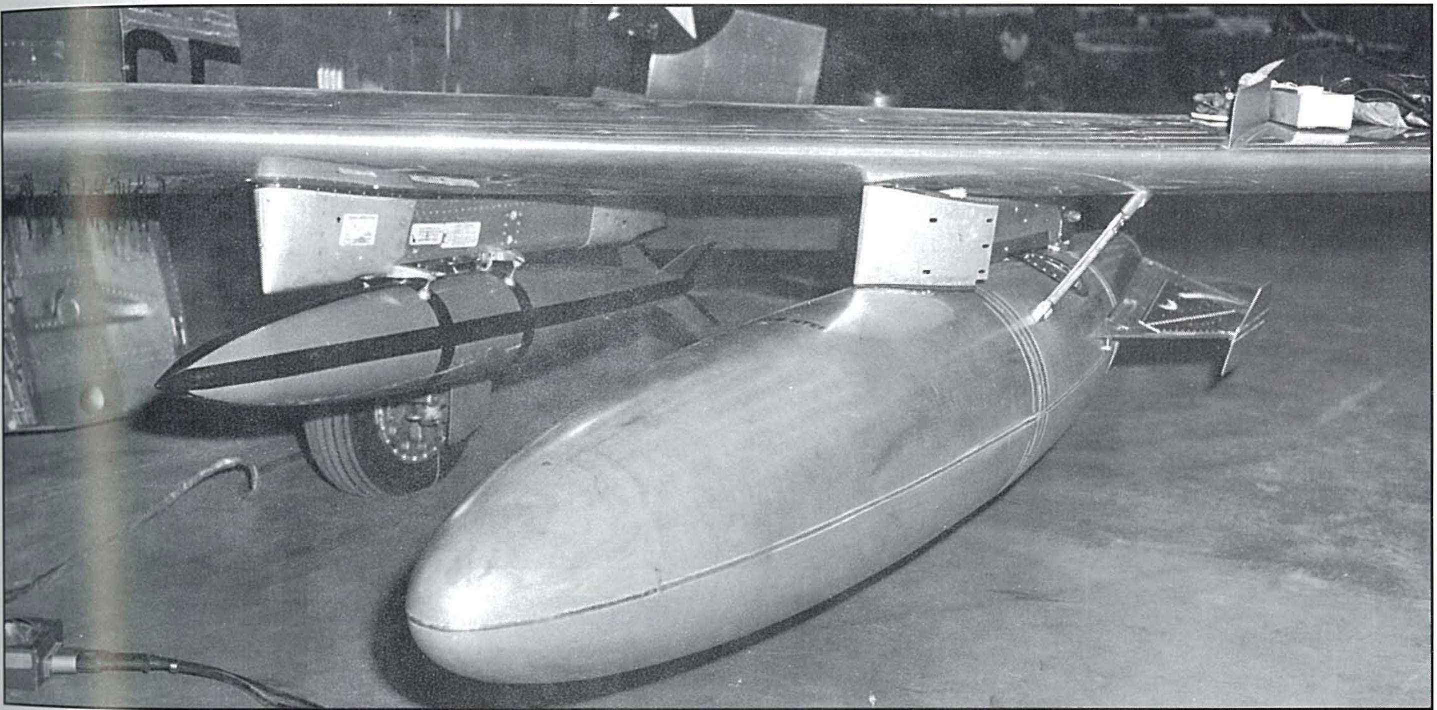


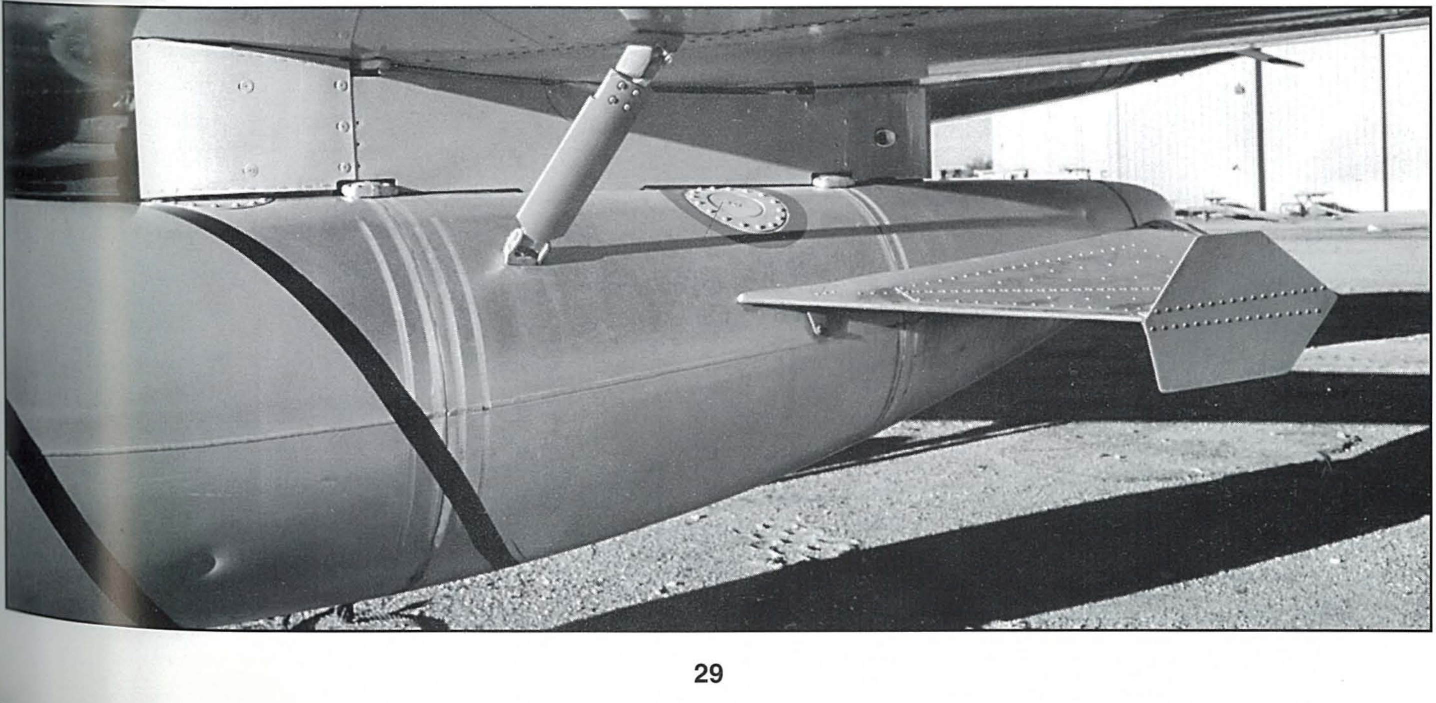


Above, 500 pound bomb mounted on the inner right wing pylon of YF-86H 52-1976. (via Bill Simone) At left and below, EX-10 bomb installed on the inner right wing pylon of YF-86H 52-1975. Note main landing gear details. (via Bill Simone) Following page top two photos, EX-12 bomb and 200 gallon drop tank mounted on left wing of YF-86H 52-1975. (via Bill Simone) At right bottom, 200 gallon wing tank details. (Ginter)

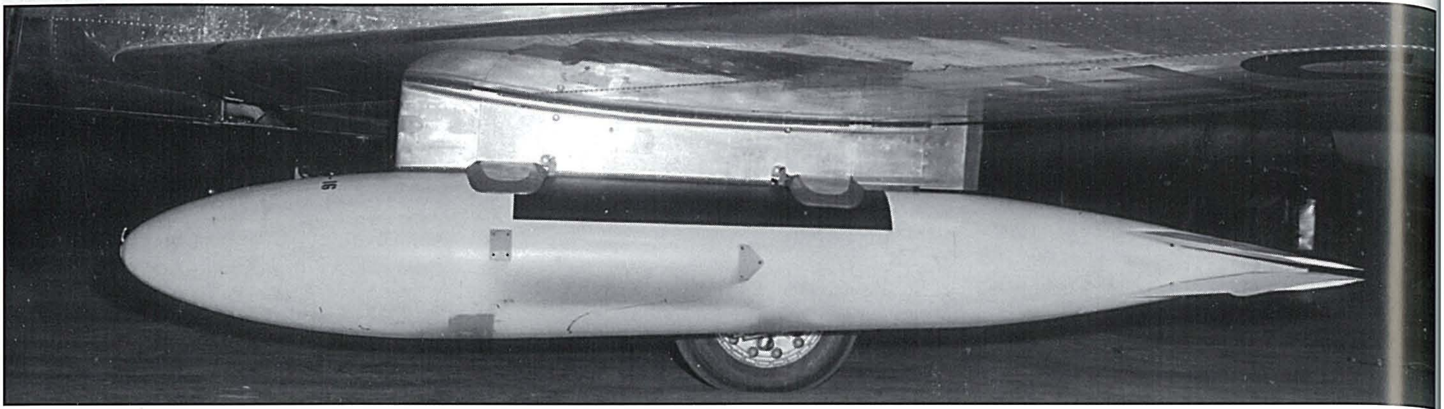


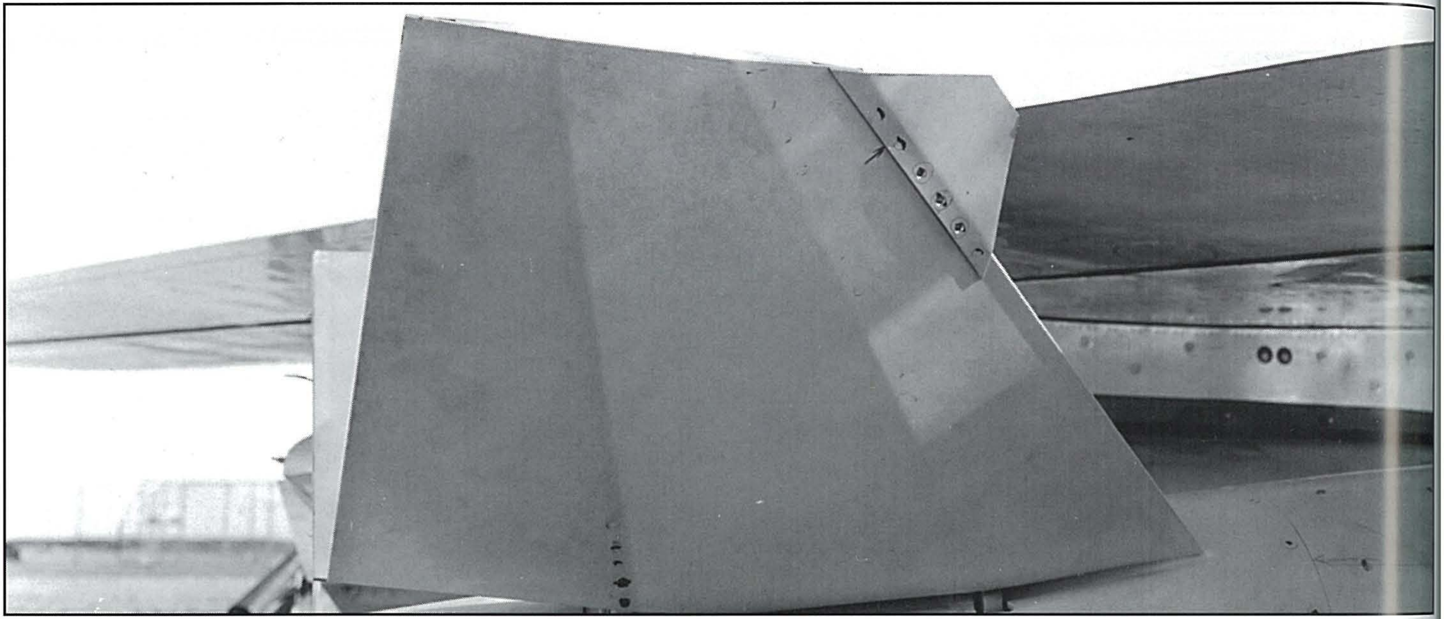


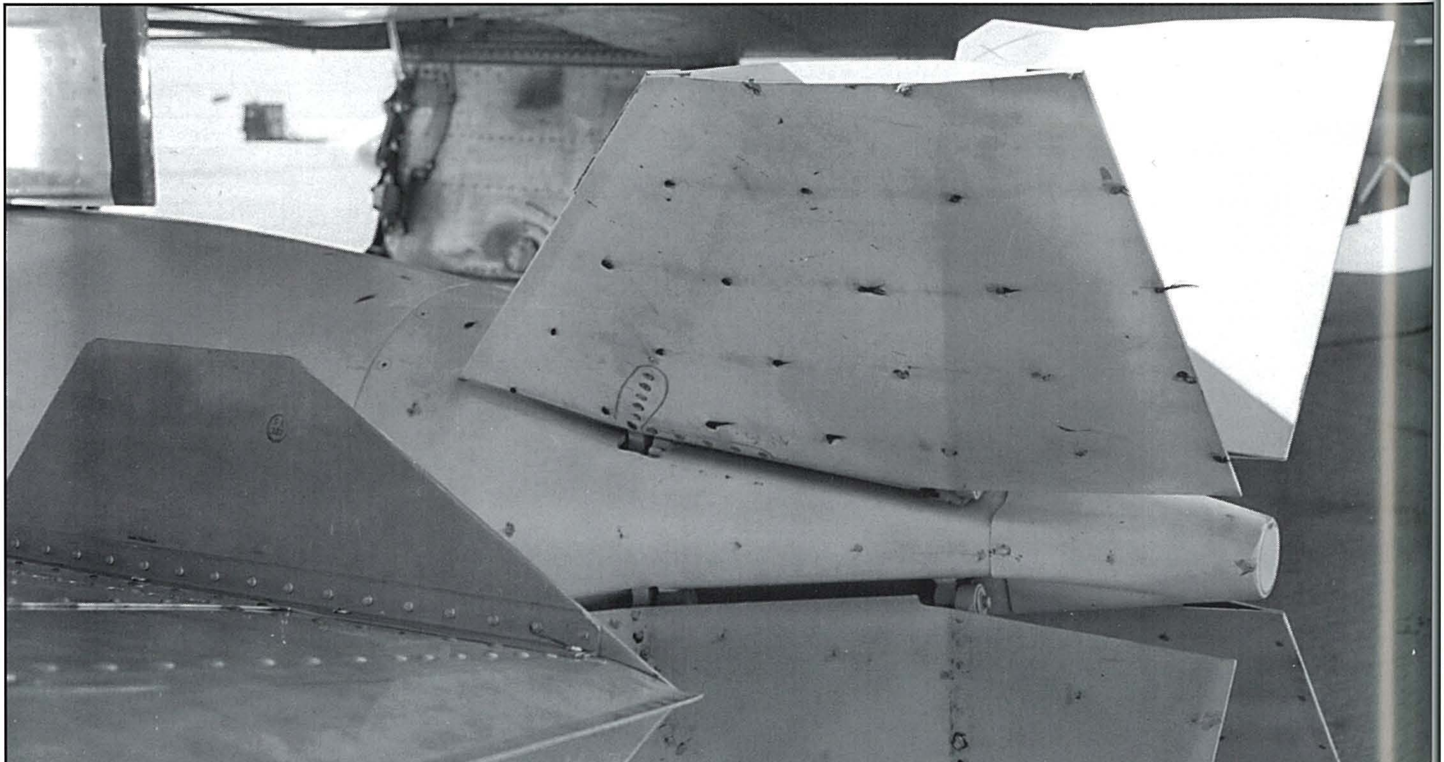




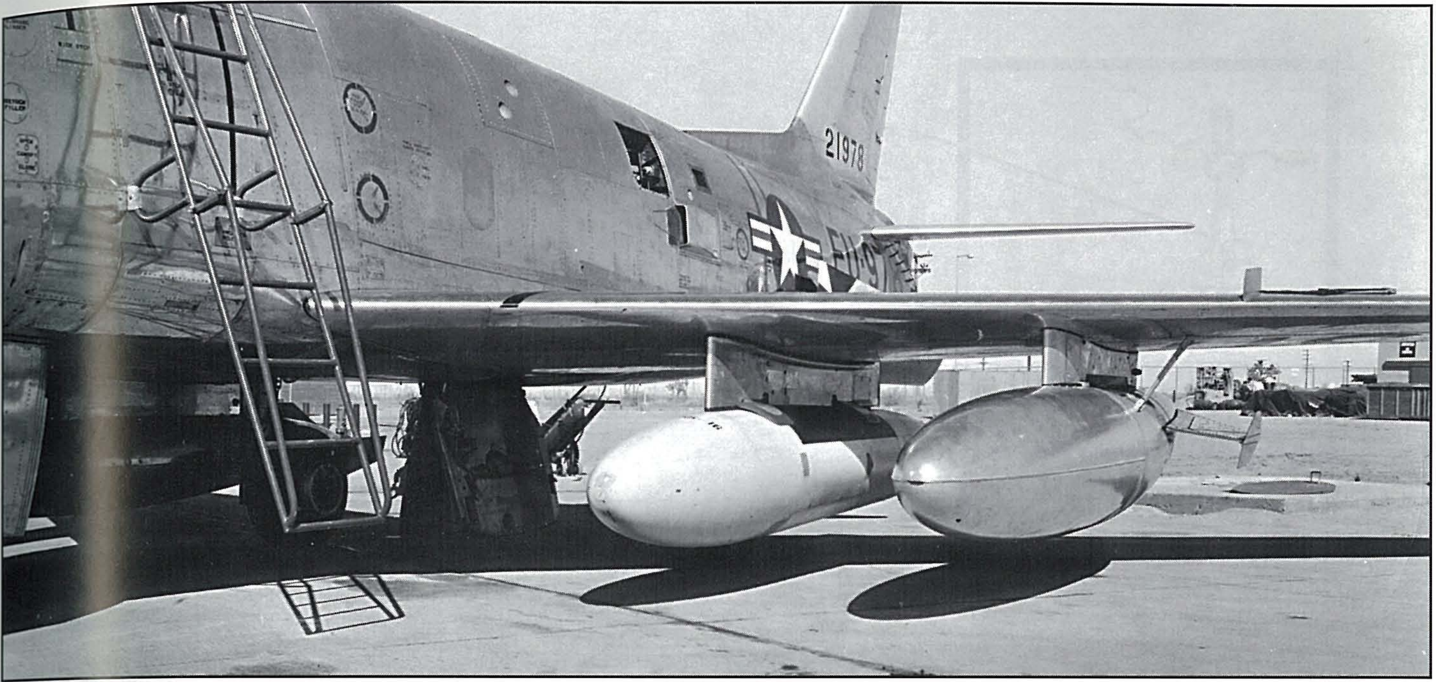
F-86H WITH T-66 SPECIAL STORE (NUC) LOADED



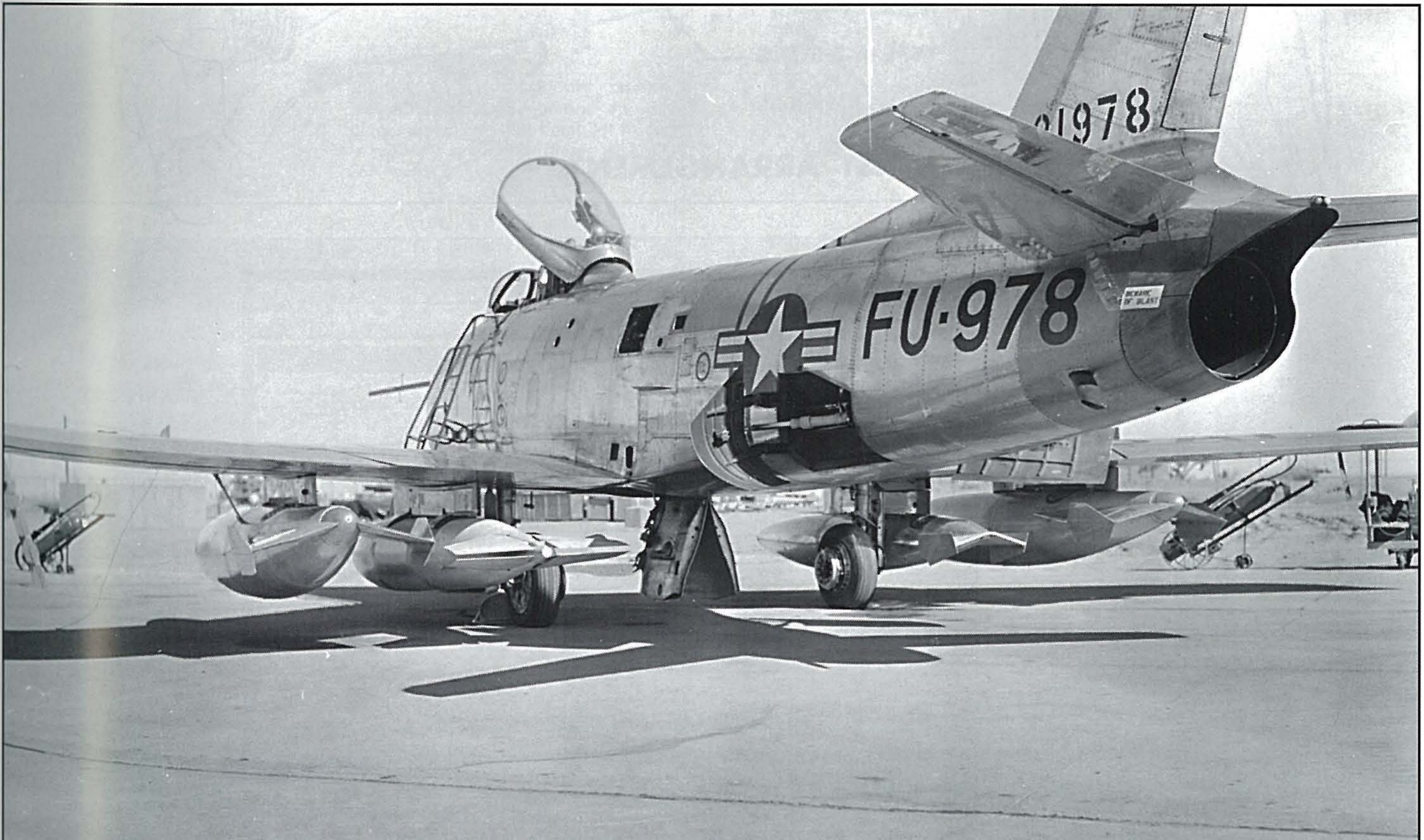


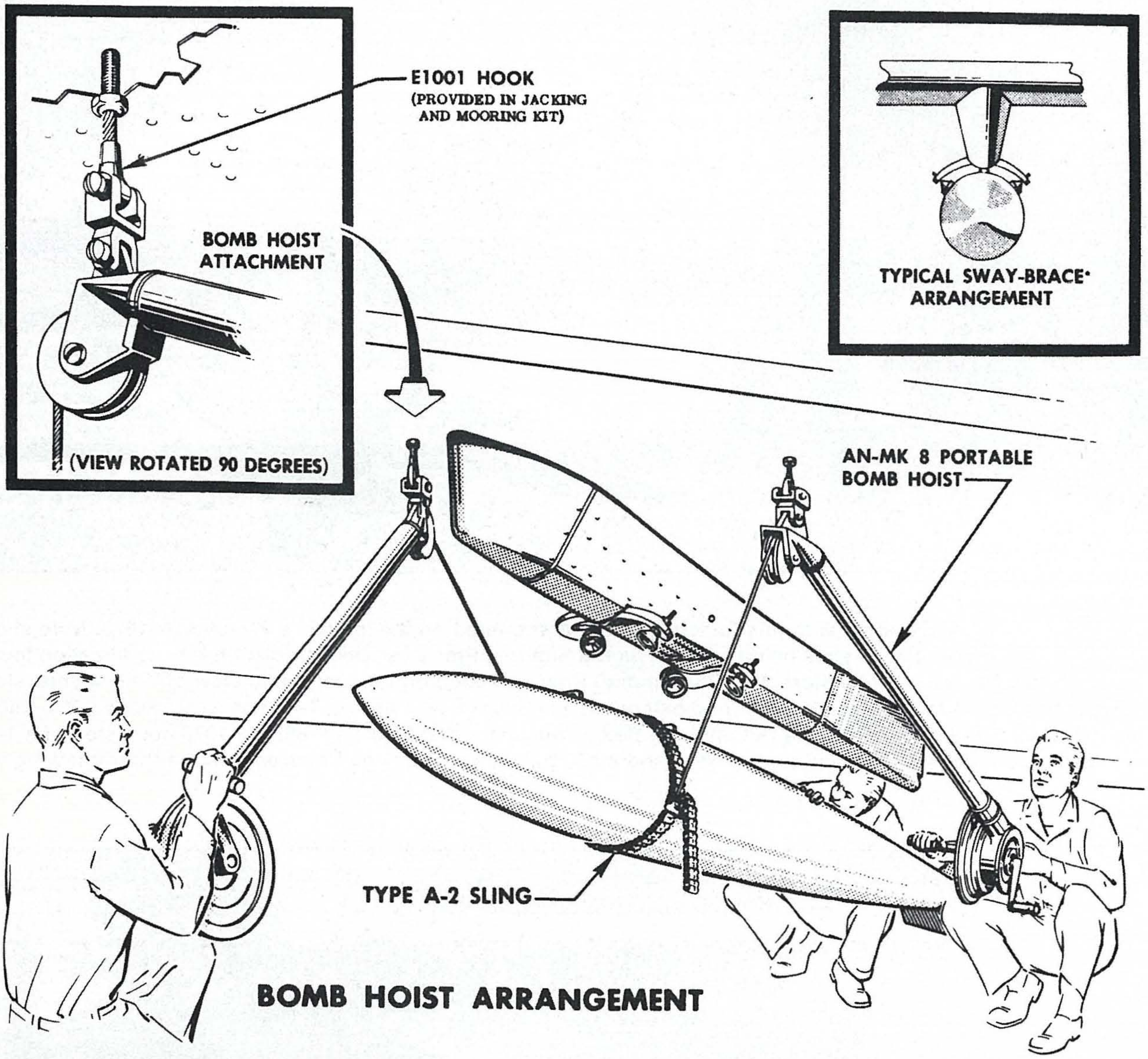


F-86H WITH T-66 SPECIAL STORE (NUC) LOADED

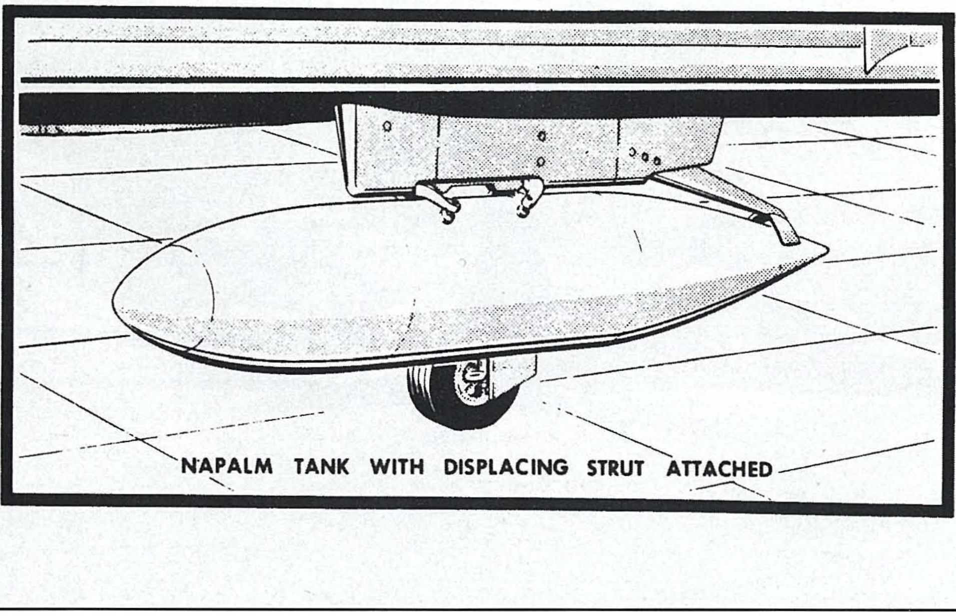


Previous page top, T-66 special store with fins folded for take-off mounted on the left wing of F-86H 52-1978. Note short wing fence typical of the 6-3 wing prior to slats being added. (via Bill Simone) Previous page middle, fin tab modification found only on upper right fin on the T-66 special store. (via Bill Simone) Previous page bottom, left-hand view of T-66 special store with fins open. Flap travel was limited once the fins were extended. (via Bill Simone) Above, T-66 special store and 200 gallon drop tank on the left wing of F-86H 52-1978. (via Bill Simone) Below, nuclear strike load on F-86H 52-1978 consisted of a T-66 special store and a 200 gallon drop tank on the left wing and a 120 gallon and a 200 gallon drop tank on the right wing. (via Bill Simone)



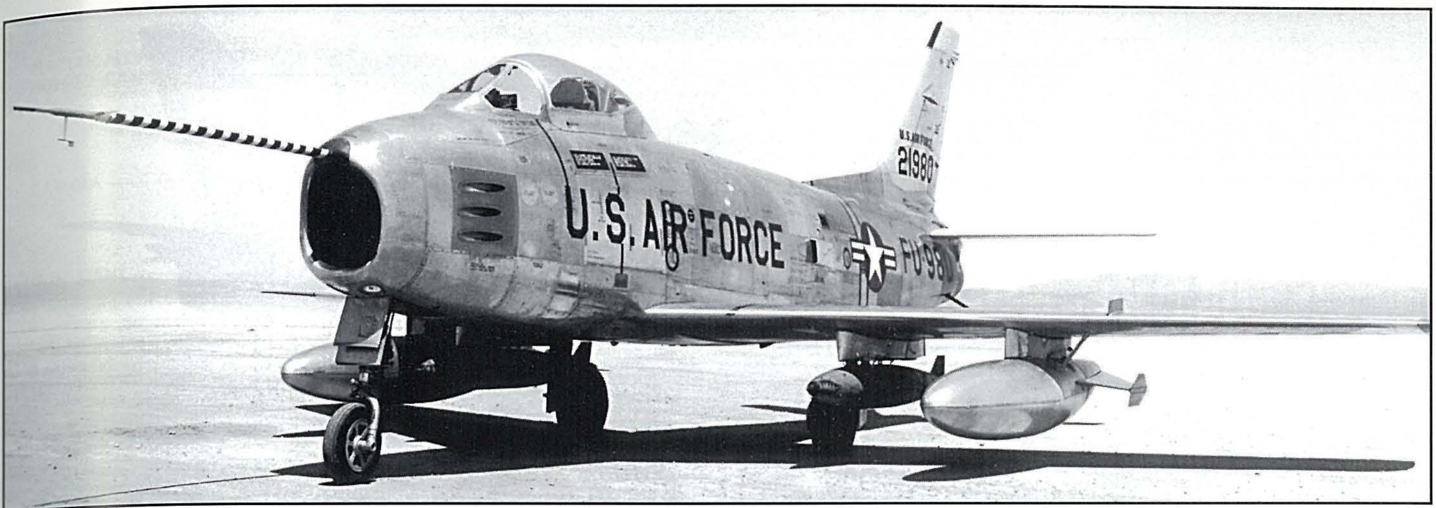

E1001 HOOK
(PROVIDED IN JACKING AND MOORING KIT)
BOMB HOIST ATTACHMENT
(VIEW ROTATED 90 DEGREES)
TYPICAL SWAY-BRACE· ARRANGEMENT
AN-MK 8 PORTABLE BOMB HOIST
TYPE A-2 SLING

BOMB HOIST ARRANGEMENT

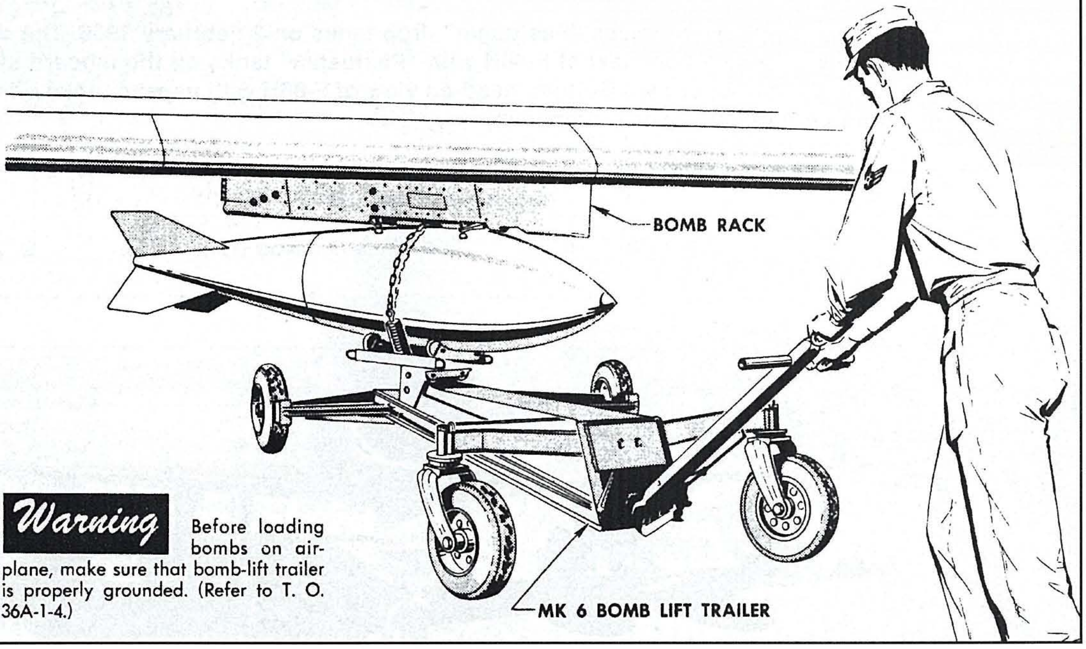


NAPALM TANK WITH DISPLACING STRUT ATTACHED

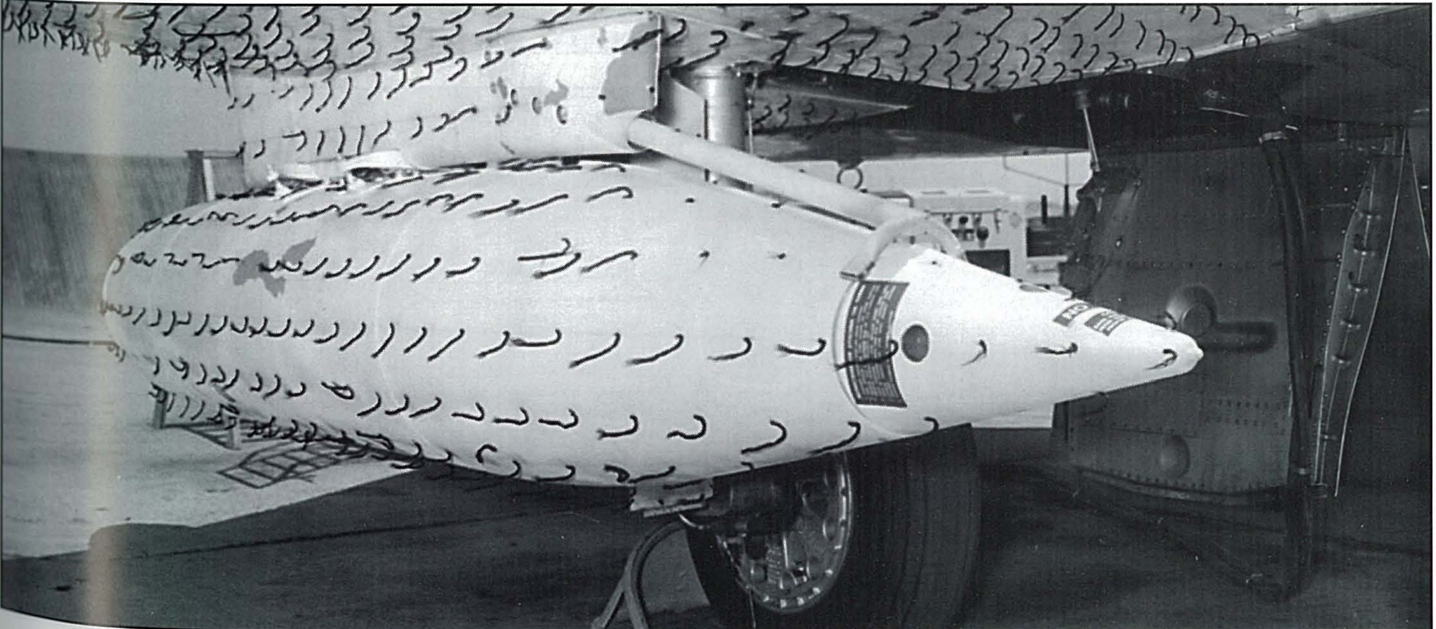
F-86H STORES LOADING



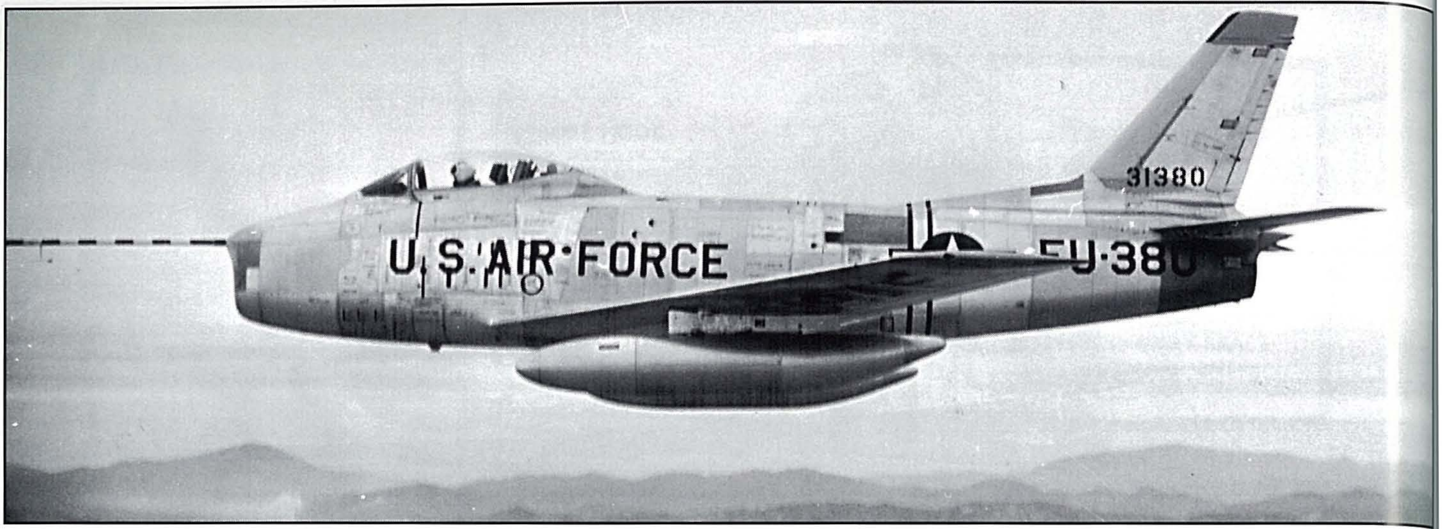
Above, F-86H 52-1980 on the Muroc lakebed with Mk. 82 bombs and 200 gallon wing tanks. Nose test boom had red and white stripes. (AFFTC) Below, YF-86H 52-1976 on 25 May 1954 after flight 142 with napalm bomb attached. Note displacing strut that was fitted when the napalm bomb was carried. (via Bill Simone)



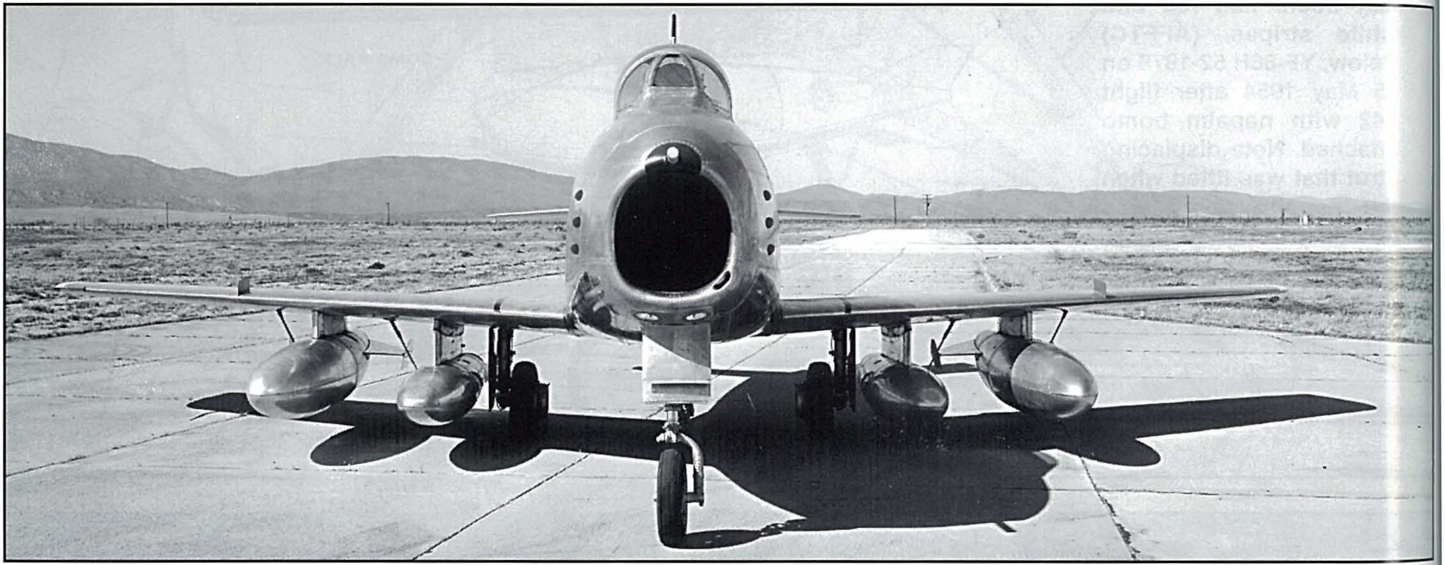
Warning Before loading bombs on airplane, make sure that bomb-lift trailer is properly grounded. (Refer to T. O. 36A-1-4.)

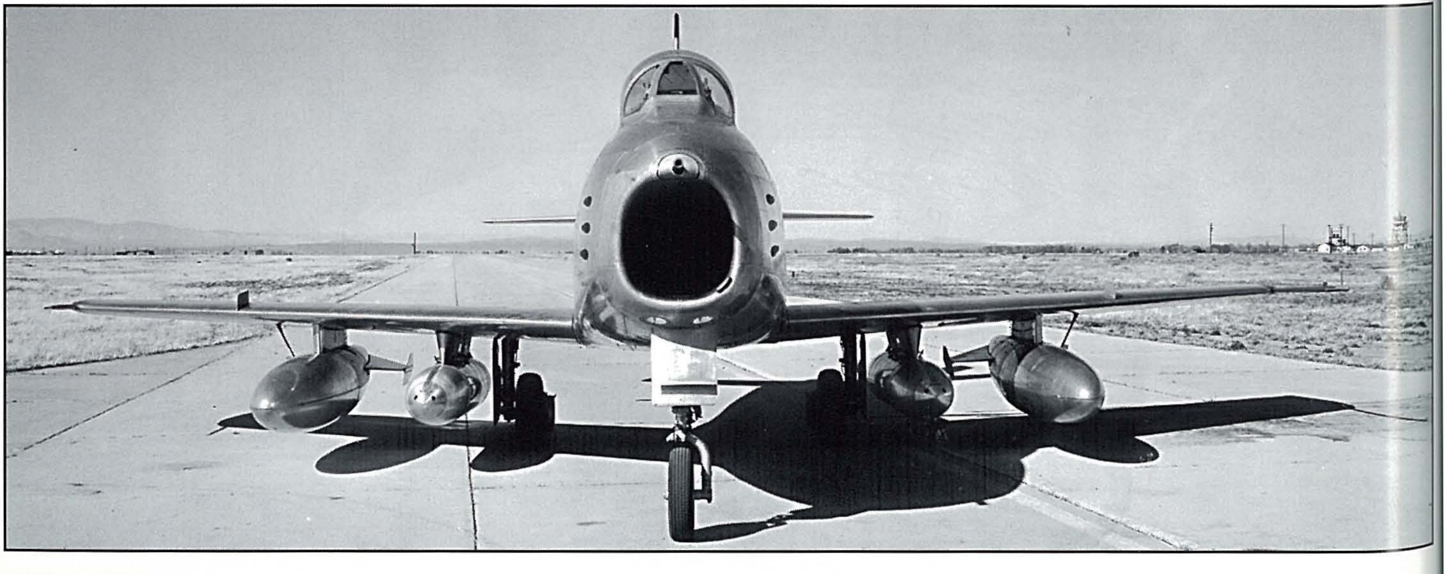


F-86H STORES LOADING

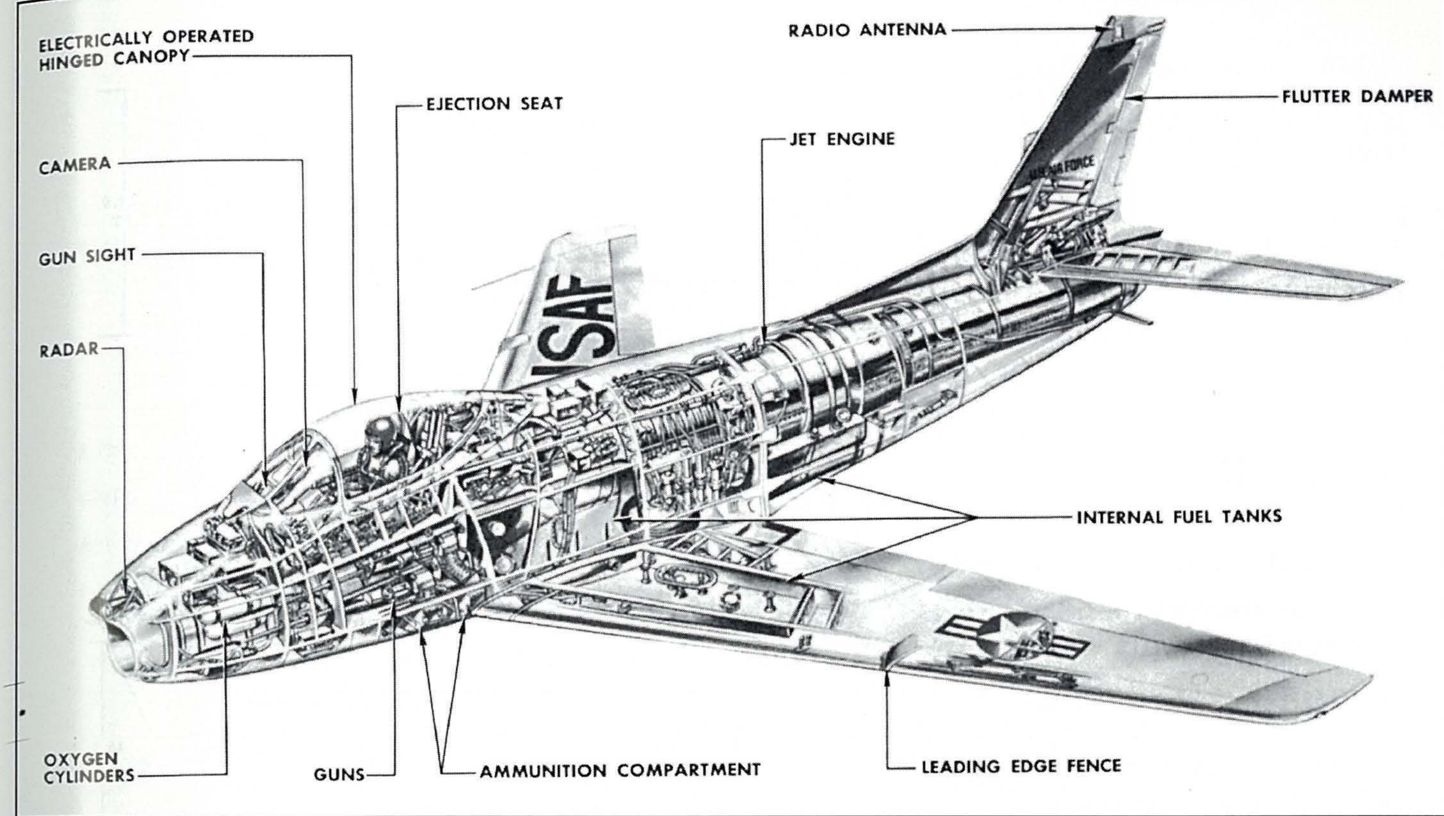


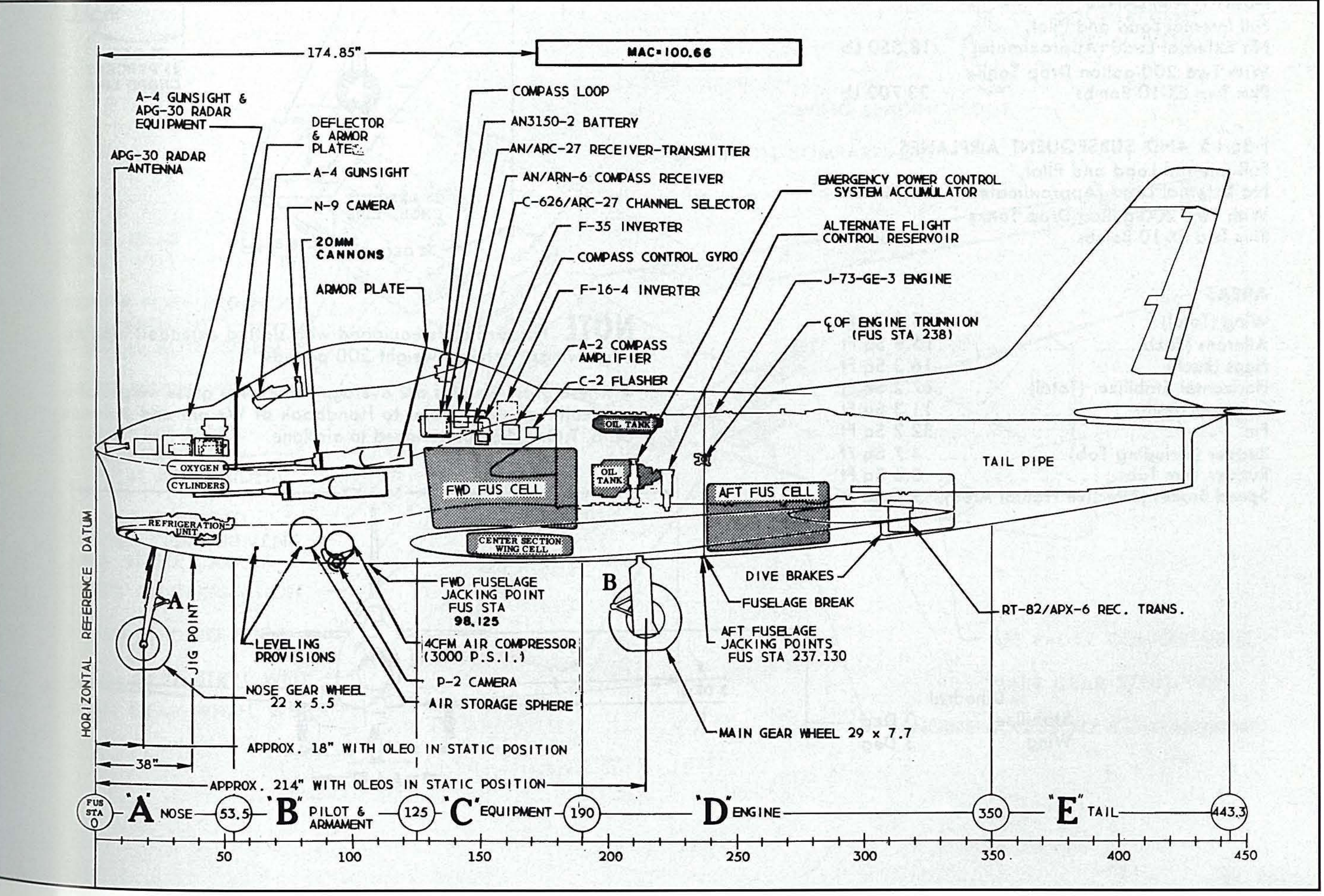
Above, F-86H 53-1380 in flight with finless "Pastushin" drop tanks on 2 February 1956. The design was discarded after testing. (via Bill Simone) Below, head-on view of F-86H with "Pastushin" tanks on the inboard stations and 200 gallon tanks on the outboard stations. (North American) Bottom, head-on view of F-86H with napalm tanks on the inboard pylons and 200 gallon tanks on the outboard pylons. (North American)





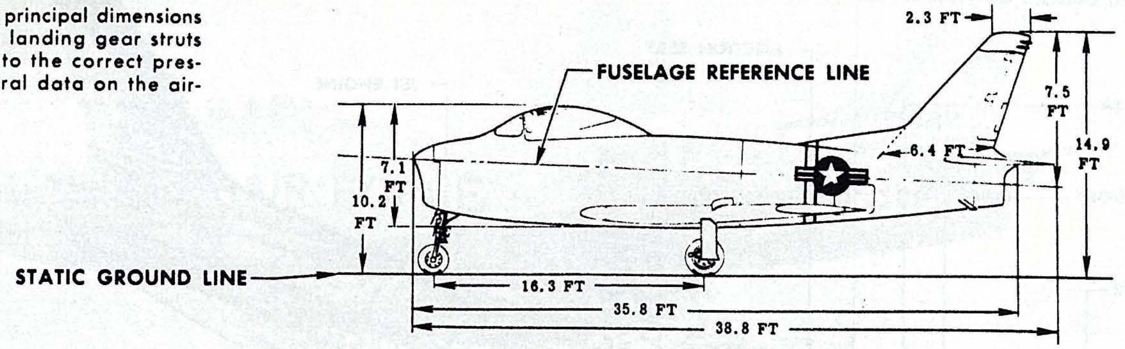
NORTH AMERICAN F-86H SABRE GENERAL ARRANGEMENT





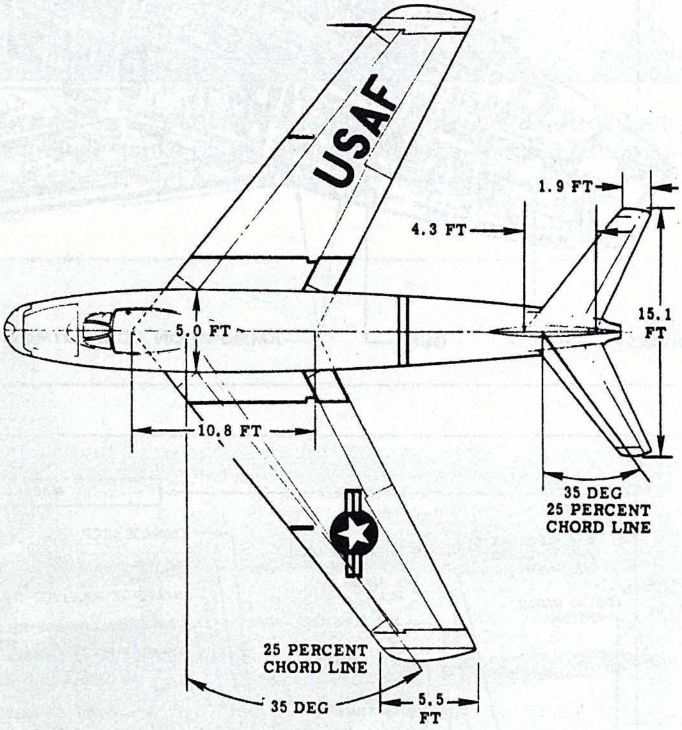
NORTH AMERICAN F-86H SABRE DIMENSIONS

NOTE Airplane principal dimensions are taken with the landing gear struts and tires inflated to the correct pressures. Other general data on the airplane is as follows:



WING

Type	Low
Airfoil Section	
Root	NACA 0012-64
Tip	NACA 0011-64
Incidence at Root	+1 Deg
Incidence at Tip	−1.2 Deg
Aspect Ratio	4.9



HORIZONTAL STABILIZER

Incidence 6 Deg Up, 10 Deg Down

WEIGHT

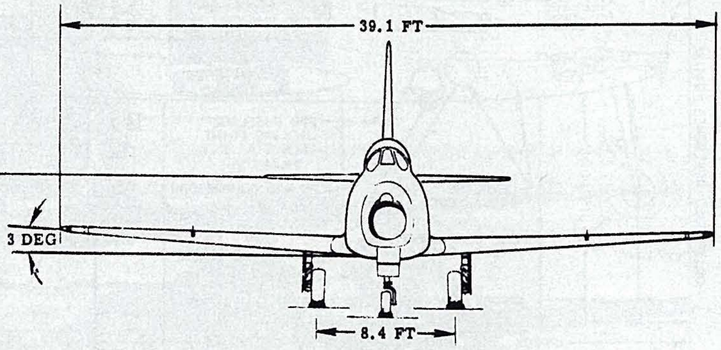
F-86H-1 AIRPLANES	
Full Internal Load and Pilot, No External Load (Approximate)	18,550 Lb
With Two 200-gallon Drop Tanks Plus Two EX-10 Bombs	23,700 Lb
F-86H-5 AND SUBSEQUENT AIRPLANES	
Full Internal Load and Pilot, No External Load (Approximate)	18,700 Lb
With Two 200-gallon Drop Tanks Plus Two EX-10 Bombs	23,850 Lb

AREAS

Wing (Total)	313.3 Sq Ft
Ailerons (Each)	15.9 Sq Ft
Flaps (Each)	16.3 Sq Ft
Horizontal Stabilizer (Total)	47.2 Sq Ft
Elevators (Both)	11.3 Sq Ft
Fin	32.2 Sq Ft
Rudder (Including Tab)	4.7 Sq Ft
Rudder Trim Tab	0.6 Sq Ft
Speed Brakes (Effective Frontal Area)	9.7 Sq Ft

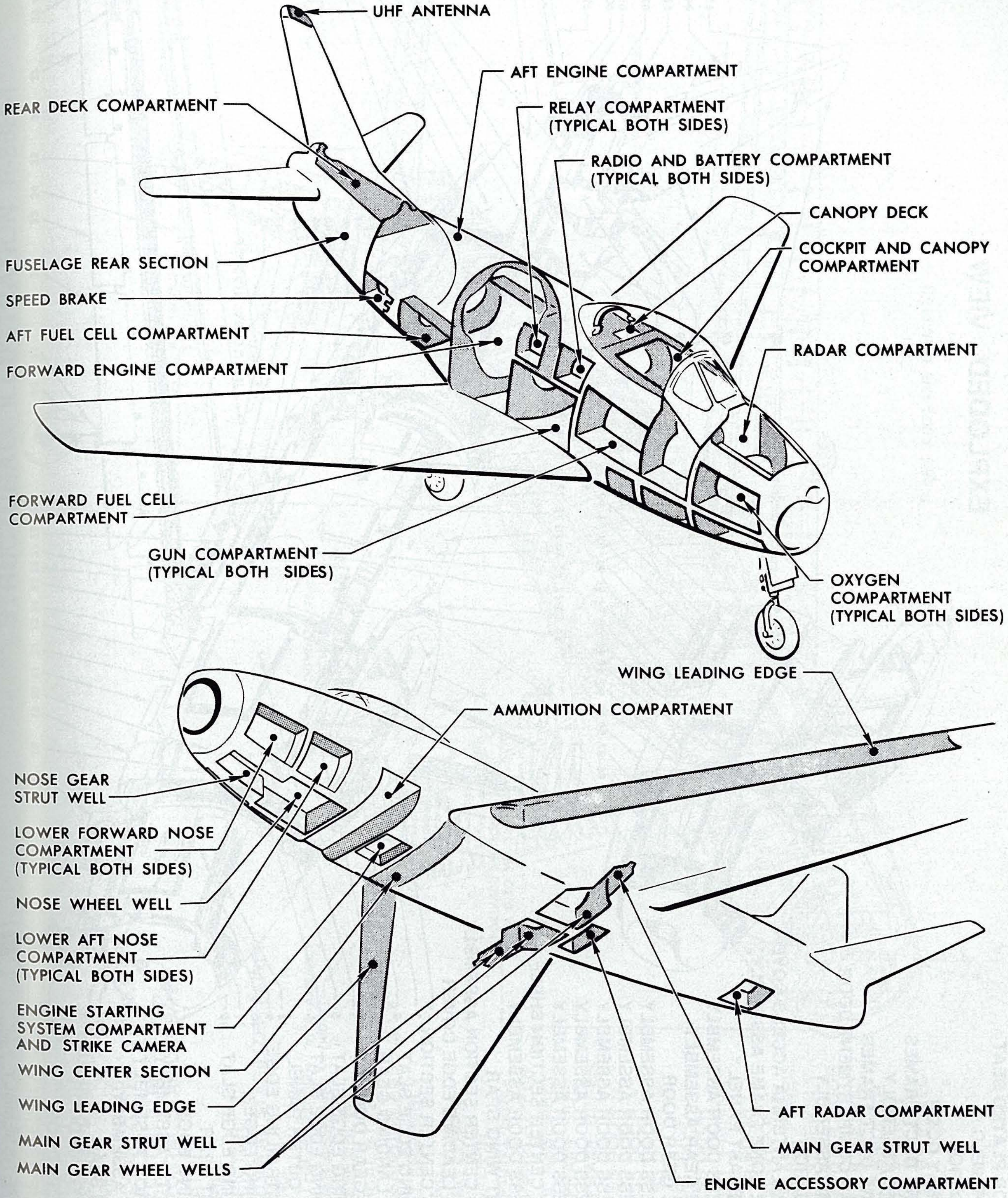
NOTE For airplanes equipped with slatted extended leading edge wings, increase weight 200 pounds.

- These gross weights are average values. For gross weight of a particular airplane, refer to Handbook of Weight and Balance Data, T.O. 1-1B-40, assigned to airplane.



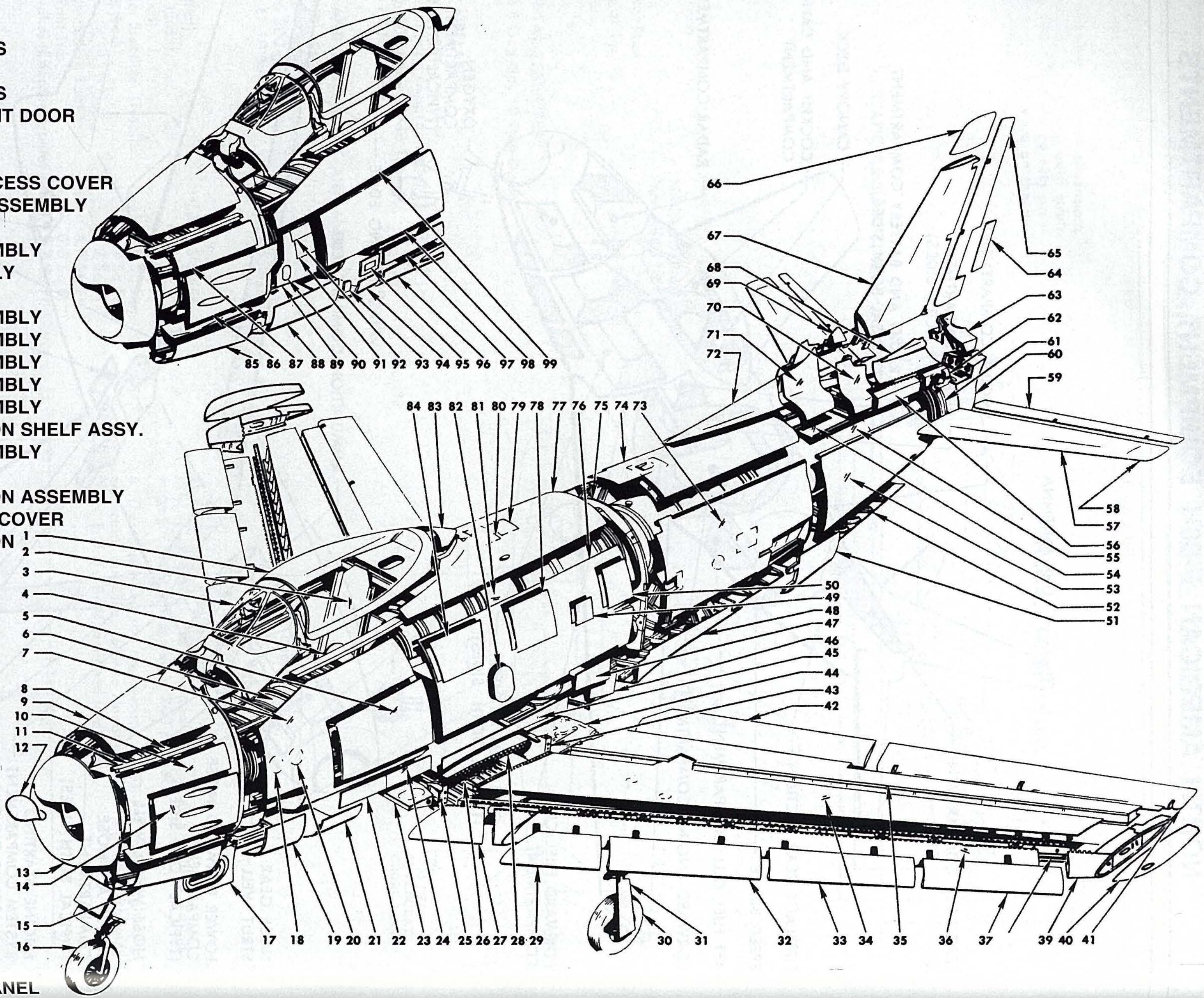
Dihedral	
Stabilizer	0 Deg
Wing	3 Deg

NORTH AMERICAN F-86H EQUIPMENT COMPARTMENTS


UHF ANTENNA
AFT ENGINE COMPARTMENT
REAR DECK COMPARTMENT
RELAY COMPARTMENT (TYPICAL BOTH SIDES)
RADIO AND BATTERY COMPARTMENT (TYPICAL BOTH SIDES)
CANOPY DECK
COCKPIT AND CANOPY COMPARTMENT
FUSELAGE REAR SECTION
SPEED BRAKE
AFT FUEL CELL COMPARTMENT
RADAR COMPARTMENT
FORWARD ENGINE COMPARTMENT
FORWARD FUEL CELL COMPARTMENT
GUN COMPARTMENT (TYPICAL BOTH SIDES)
OXYGEN COMPARTMENT (TYPICAL BOTH SIDES)
WING LEADING EDGE
AMMUNITION COMPARTMENT
NOSE GEAR STRUT WELL
LOWER FORWARD NOSE COMPARTMENT (TYPICAL BOTH SIDES)
NOSE WHEEL WELL
LOWER AFT NOSE COMPARTMENT (TYPICAL BOTH SIDES)
ENGINE STARTING SYSTEM COMPARTMENT AND STRIKE CAMERA
WING CENTER SECTION
WING LEADING EDGE
MAIN GEAR STRUT WELL
MAIN GEAR WHEEL WELLS
AFT RADAR COMPARTMENT
MAIN GEAR STRUT WELL
ENGINE ACCESSORY COMPARTMENT

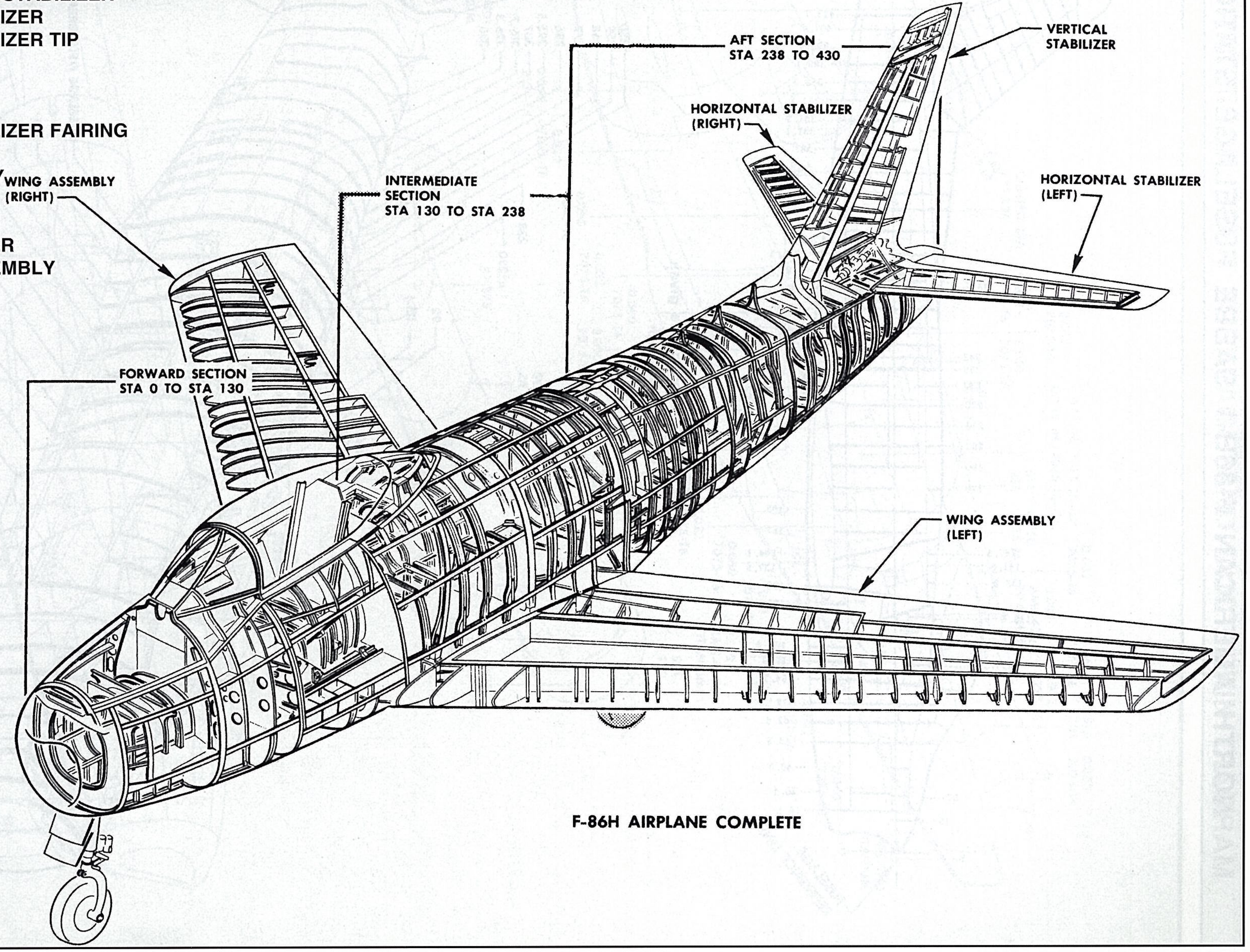
EXPLODED VIEW

1.) CANOPY
2.) ARMOR PLATED SEAT
3.) WINDSHIELD
4.) LONGERON
5.) GUN BAY DOOR
6.) ENGINE DUCT FRAMES
7.) FRAME ASSEMBLY
8.) ENGINE DUCT FRAMES
9.) RADAR COMPARTMENT DOOR
10.) FRAME ASSEMBLY
11.) LONGERON
12.) RADAR ANTENNA ACCESS COVER
13.) NOSE CONE FRAME ASSEMBLY
14.) GUN BLAST PANEL
15.) ACCESS DOOR ASSEMBLY
16.) NOSE GEAR ASSEMBLY
17.) NOSE GEAR DOOR
18.) ACCESS DOOR ASSEMBLY
19.) ACCESS DOOR ASSEMBLY
20.) ACCESS DOOR ASSEMBLY
21.) ACCESS DOOR ASSEMBLY
22.) ACCESS DOOR ASSEMBLY
23.) WING CENTER SECTION SHELF ASSY.
24.) ACCESS DOOR ASSEMBLY
25.) FRONT WING SPAR
26.) WING CENTER SECTION ASSEMBLY
27.) WING LEADING EDGE COVER
28.) WING CENTER SECTION
29.) LEADING EDGE SLAT
30.) MAIN LANDING GEAR
31.) MAIN GEAR DOOR
32.) LEADING EDGE SLAT
33.) LEADING EDGE SLAT
34.) WING OUTER PANEL
35.) WING TRAILING EDGE
36.) LEADING EDGE
37.) LEADING EDGE SLAT
38.) FRONT SPAR
39.) LEADING EDGE
40.) WING TIP ASSEMBLY
41.) AILERON ASSEMBLY
42.) FLAP ASSEMBLY
43.) REAR SPAR
44.) MAIN GEAR DOOR
45.) ACCESS DOOR
46.) FRAME ASSEMBLY
47.) FRAME ASSEMBLY
48.) LOWER FUSELAGE PANEL



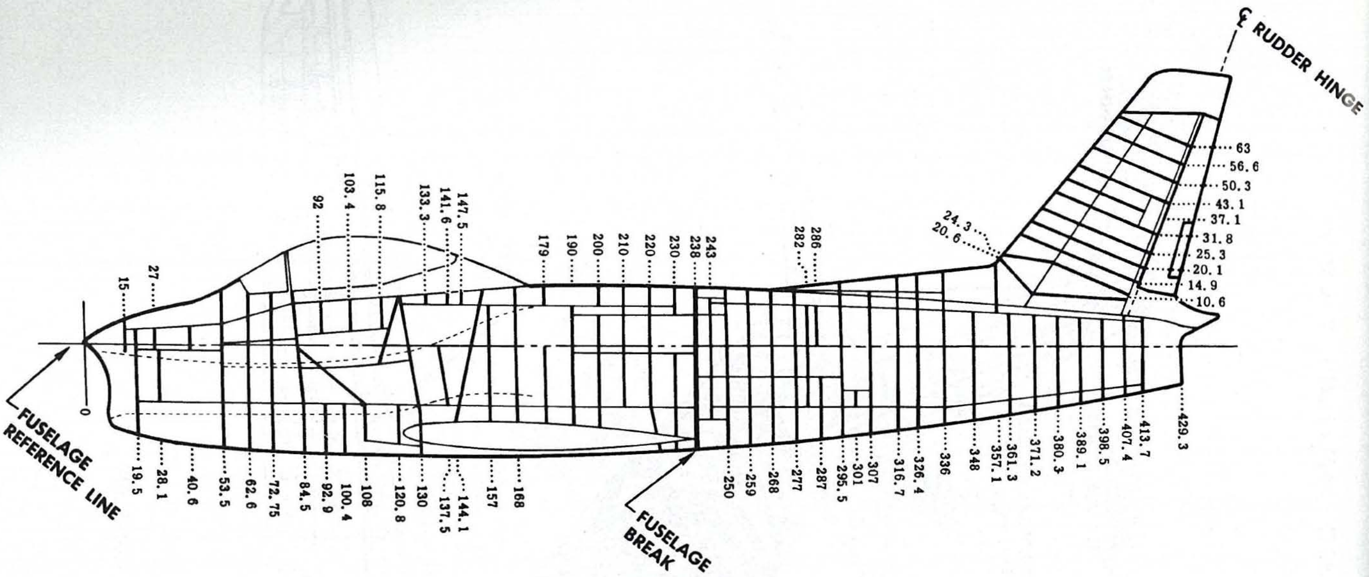
STRUCTURAL ILLUSTRATION F-86H-1

49.) ACCESS DOOR ASSEMBLY
50,) ACCESS DOOR ASSEMBLY
51.) SPEED BRAKES
52.) FUSELAGE FRAME LOWER
53.) FUSELAGE FRAME SIDE
54.) FUSELAGE FRAME TOP
55.) ENGINE
56.) PANEL-HORIZONTAL STABILIZER
57.) HORIZONTAL STABILIZER
58.) HORIZONTAL STABILIZER TIP
59.) ELEVATOR
60.) TAIL PIPE
61.) RESTRICTOR
62.) HORIZONTAL STABILIZER FAIRING
63.) FAIRING
64.) TRIM TAB ASSEMBLY
65.) RUDDER ASSEMBLY
66.) TIP ASSEMBLY
67.) VERTICAL STABILIZER
68.) ACCESS DOOR ASSEMBLY
69.) FILLET ASSEMBLY
70.) FAIRING
71.) FAIRING COVER
72.) DORSAL FIN
73.) FUS. PANEL SIDE
74.) FUS. PANEL UPPER
75.) FRAME ASSEMBLY
76.) FUS. FRAME SIDE
77.) FUS. FRAME UPPER
78.) ACCESS DOOR
79.) ACCESS DOOR
80.) ACCESS DOOR
81.) ENGINE DUCT
82.) ACCESS DOOR
83.) CANOPY FAIRING
84.) ACCESS DOOR
85.) ACCESS DOOR
86.) GUN BLAST PANEL
87.) FRAME ASSEMBLY
88.) AMMUNITION DOOR
89.) FRAME ASSEMBLY
90-97.) ACCESS DOOR
98.) GUN BAY DOOR
99.) FUSELAGE PANEL

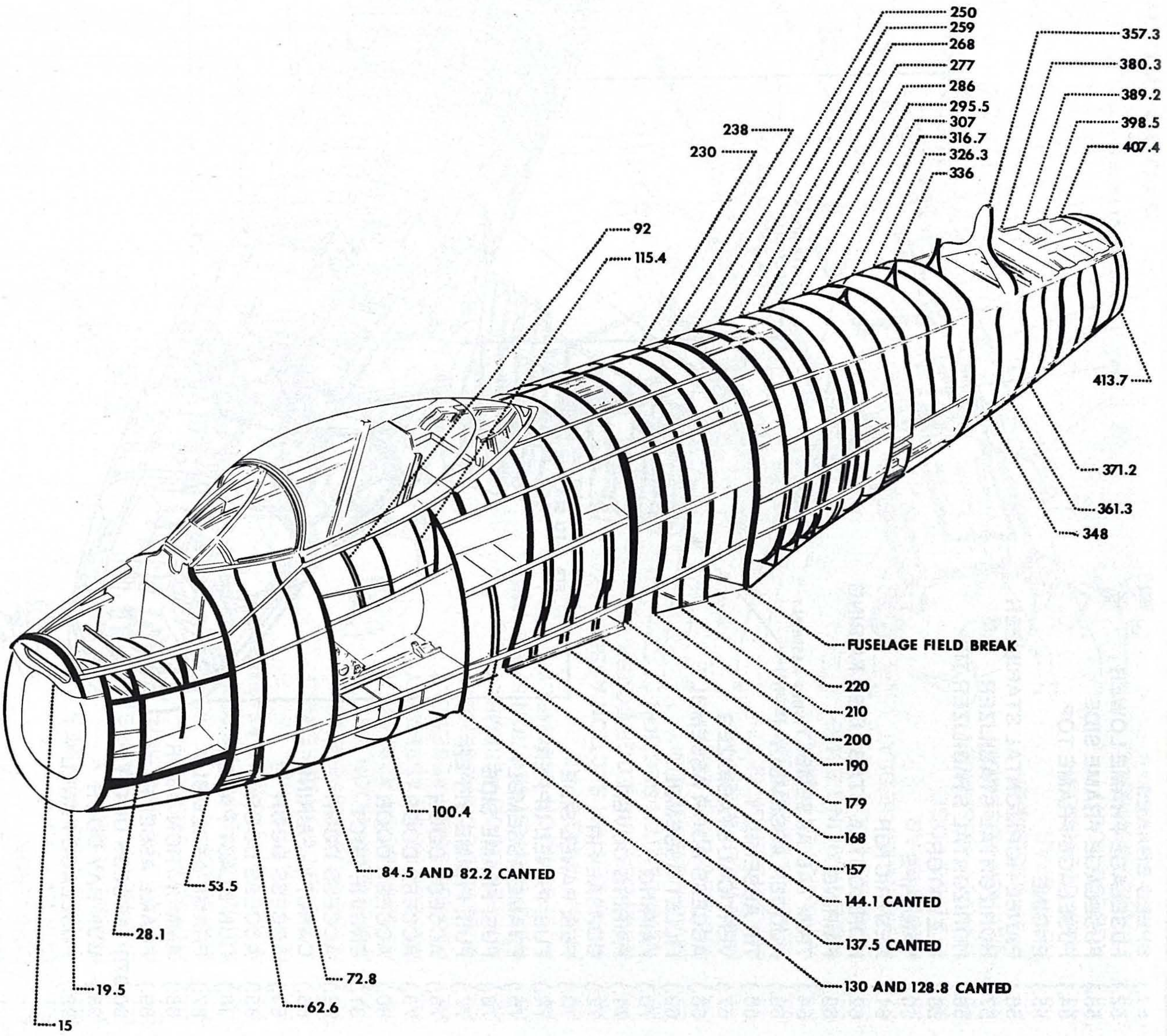

WING ASSEMBLY (RIGHT)
FORWARD SECTION STA 0 TO STA 130
INTERMEDIATE SECTION STA 130 TO STA 238
AFT SECTION STA 238 TO 430
HORIZONTAL STABILIZER (RIGHT)
VERTICAL STABILIZER
HORIZONTAL STABILIZER (LEFT)
WING ASSEMBLY (LEFT)

F-86H AIRPLANE COMPLETE

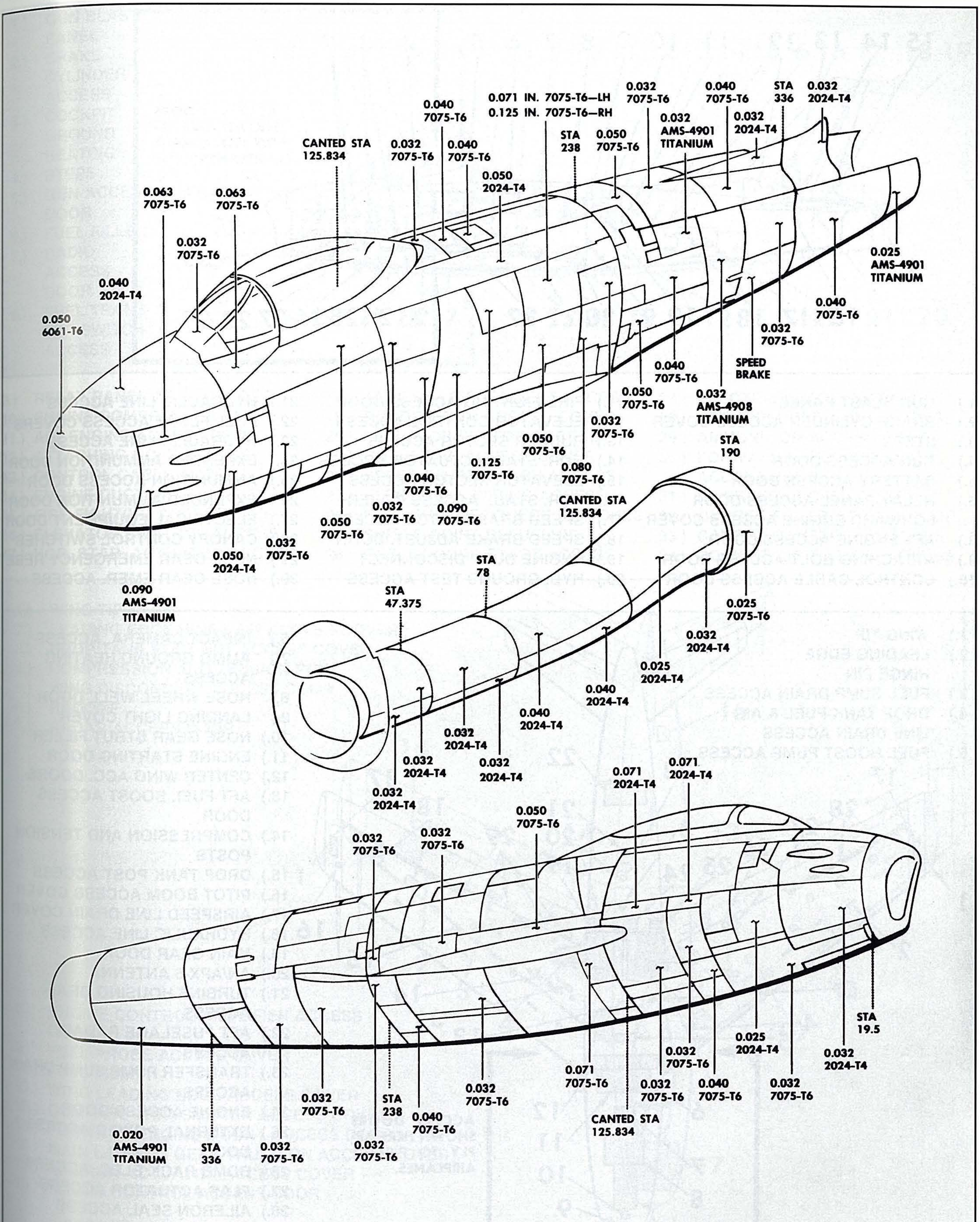
NORTH AMERICAN F-86H-1 SABRE FUSELAGE STATIONS



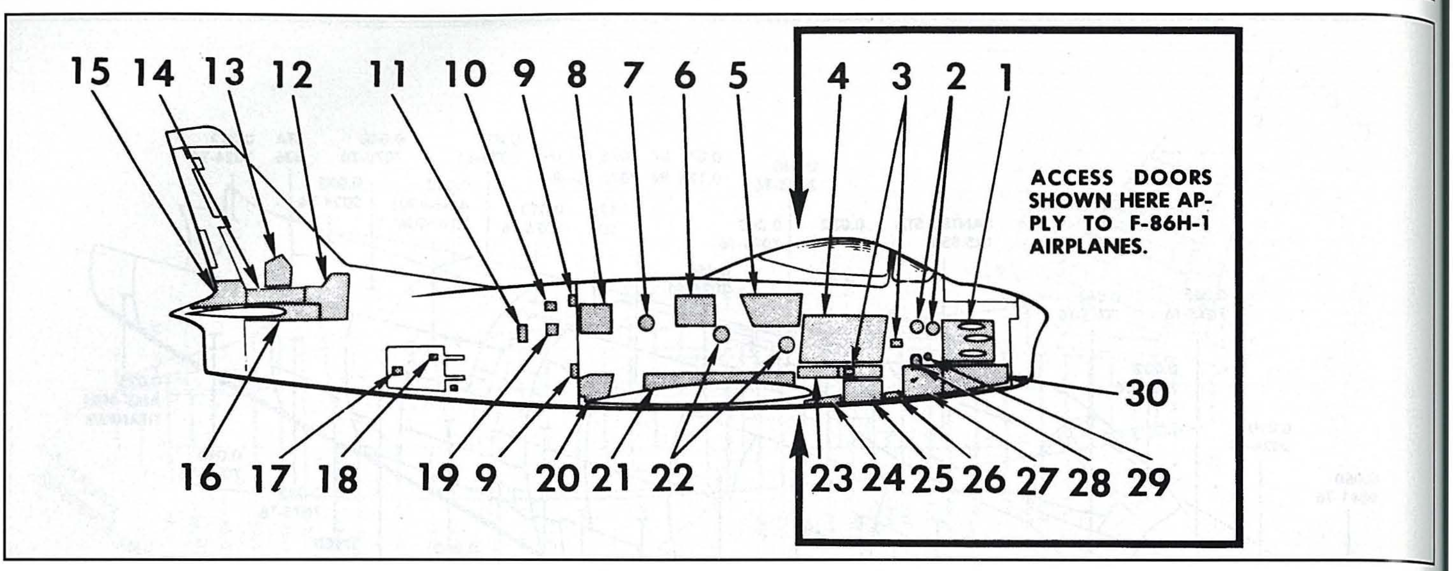
NOTE All dimensions are given to the nearest tenth inch.



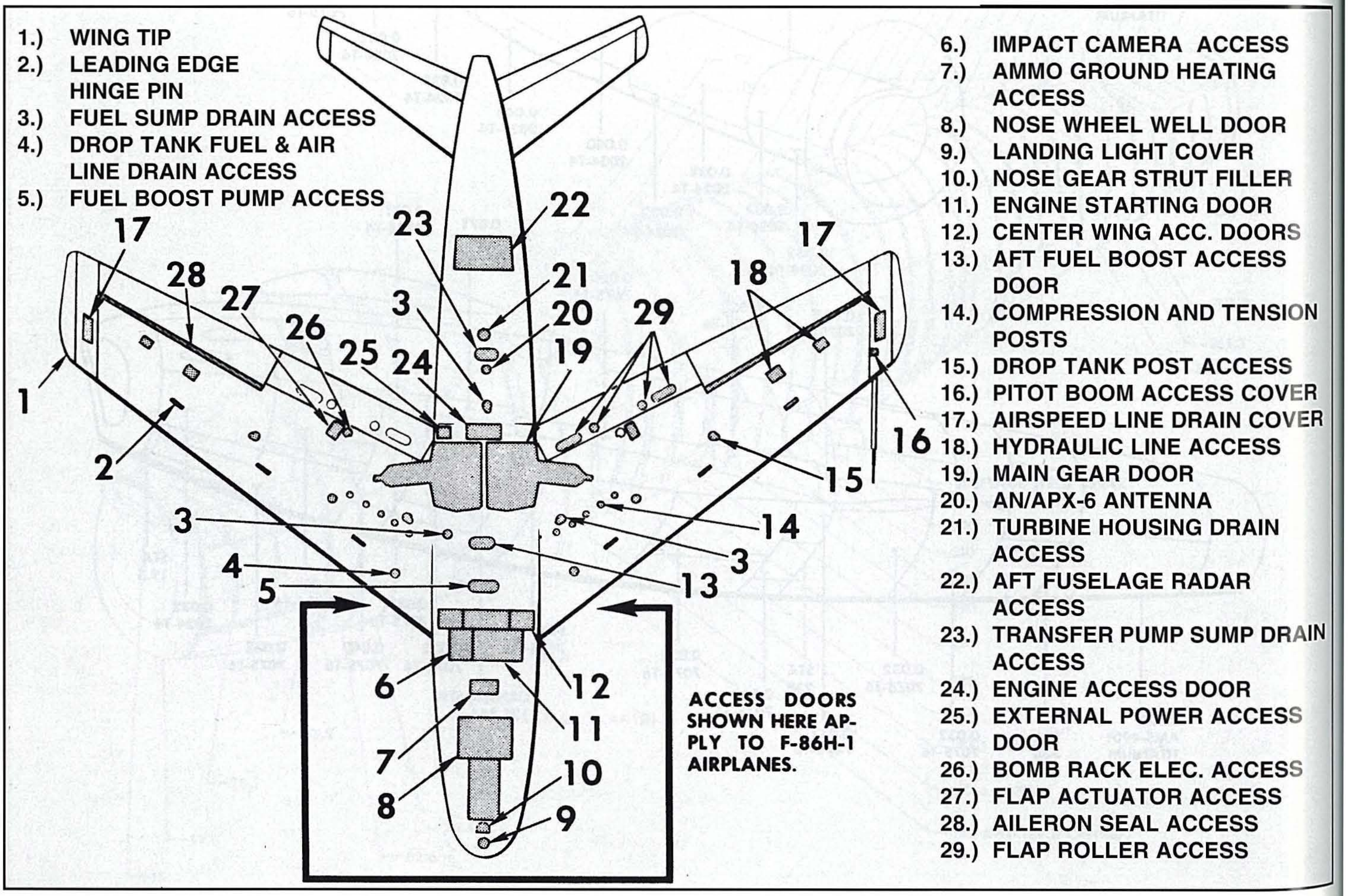
NORTH AMERICAN F-86H FUSELAGE AND DUCT SKIN DIAGRAM



F-86H ACCESS AND INSPECTION PROVISIONS



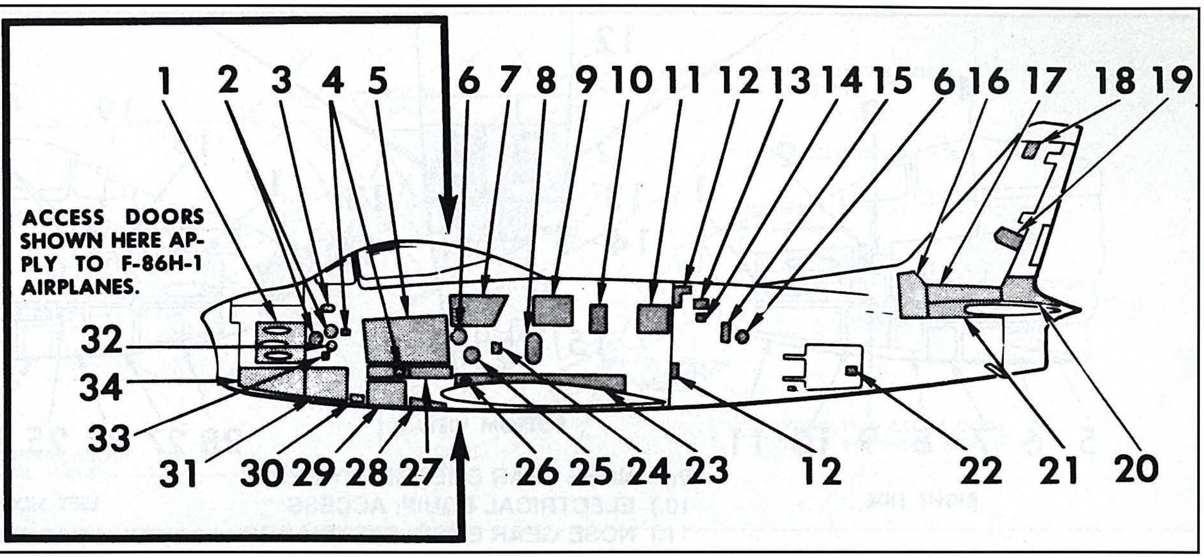
1.) GUN BLAST PANEL
2.) BRAKE CYLINDER ACCESS COVER
3.) STEPS
4.) GUN ACCESS DOOR
5.) BATTERY ACCESS DOOR
6.) RELAY PANEL ACCESS DOOR
7.) FORWARD ENGINE ACCESS COVER
8.) AFT ENGINE ACCESS DOOR
9.) ATTACHING BOLT ACCESS DOOR
10.) CONTROL CABLE ACCESS DOOR
11.) FIRE-FIGHTING ACCESS DOOR
12.) ELEVATOR CONTROL ACCESS
13.) RUDDER SECTOR ACCESS
14.) HOR. STAB. ACTUATOR ACCESS
15.) ELEVATOR SECTOR ACCESS
16.) HOR. STAB. ACCESS COVER
17.) SPEED BRAKE LATCH ACCESS
18.) SPEED BRAKE ADJUST. DOOR
19.) ENGINE DUCT DISCONNECT
20.) HYD. GROUND TEST ACCESS
21.) HYDRAULIC LINE ACCESS
22.) FUEL FLOAT ACCESS COVERS
23.) HYDRAULIC LINE ACCESS
24.) EXPENDED AMMUNITION DOOR
25.) AMMUNITION ACCESS DOOR
26.) EXPENDED AMMUNITION DOOR
27.) ELECTRICAL EQUIPMENT DOOR
28.) CANOPY CONTROL SWITCHES
29.) NOSE GEAR EMERGENCY RESET
30.) NOSE GEAR EMER. ACCESS



1.) WING TIP
2.) LEADING EDGE HINGE PIN
3.) FUEL SUMP DRAIN ACCESS
4.) DROP TANK FUEL & AIR LINE DRAIN ACCESS
5.) FUEL BOOST PUMP ACCESS
6.) IMPACT CAMERA ACCESS
7.) AMMO GROUND HEATING ACCESS
8.) NOSE WHEEL WELL DOOR
9.) LANDING LIGHT COVER
10.) NOSE GEAR STRUT FILLER
11.) ENGINE STARTING DOOR
12.) CENTER WING ACC. DOORS
13.) AFT FUEL BOOST ACCESS DOOR
14.) COMPRESSION AND TENSION POSTS
15.) DROP TANK POST ACCESS
16.) PITOT BOOM ACCESS COVER
17.) AIRSPEED LINE DRAIN COVER
18.) HYDRAULIC LINE ACCESS
19.) MAIN GEAR DOOR
20.) AN/APX-6 ANTENNA
21.) TURBINE HOUSING DRAIN ACCESS
22.) AFT FUSELAGE RADAR ACCESS
23.) TRANSFER PUMP SUMP DRAIN ACCESS
24.) ENGINE ACCESS DOOR
25.) EXTERNAL POWER ACCESS DOOR
26.) BOMB RACK ELEC. ACCESS
27.) FLAP ACTUATOR ACCESS
28.) AILERON SEAL ACCESS
29.) FLAP ROLLER ACCESS

F-86H ACCESS AND INSPECTION PROVISIONS

1.) GUN BLAST PANEL
2.) BRAKE CYLINDER ACCESS
3.) COCKPIT GROUND HEATING
4.) STEPS
5.) GUN ACCESS DOOR
6.) FUEL FILLER
7.) RADIO ACCESS DOOR
8.) FUEL TRANSFER SWITCH ACCESS

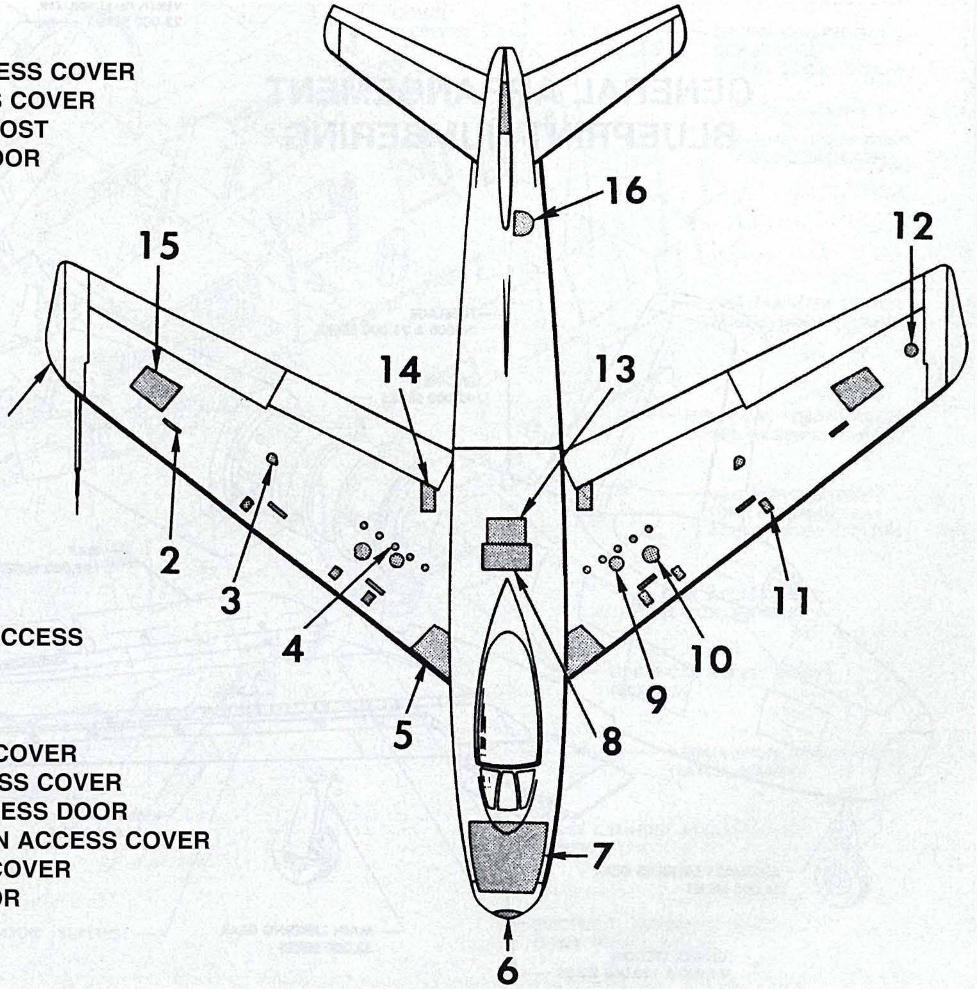


ACCESS DOORS SHOWN HERE APPLY TO F-86H-1 AIRPLANES.

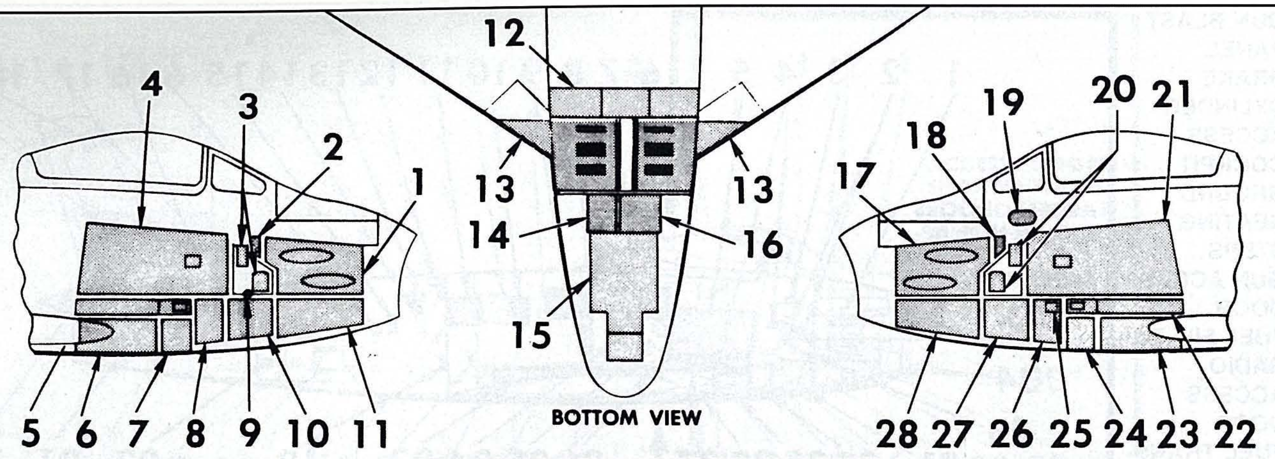
9.) RELAY PANEL ACCESS DOOR
10.) ENGINE COMPRESSOR COMP.
11.) AFT ENGINE ACCESS DOOR
12.) ATTACHING BOLT ACCESS
13.) CONTROL CABLE ACCESS
14.) ENGINE DUCT DISCONNECT
15.) FIRE-FIGHTING ACCESS DOOR
16.) ELEVATOR CONTROL ACCESS
17.) HOR. STAB. ACTUATOR ACCESS
18.) ANTENNA DISCONNECT ACCESS
19.) RUDDER TRIM ACCESS COVER
20.) ELEVATOR SECTOR ACCESS
21.) HOR. STAB. ACCESS COVER
22.) SPEED BRAKE LATCH ACCESS
23.) ELECTRICAL WIRING ACCESS
24.) FUEL SHUTOFF CHECK SWITCHES
25.) SINGLE-POINT REFUELING
26.) ENG. GROUND START ACCESS
27.) ELECTRICAL ACCESS DOOR
28.) AFT EXPENDED AMMO ACCESS
29.) AMMUNITION ACCESS DOOR
30.) FORWARD EXPENDED AMMO ACCESS DOOR
31.) INVERTER ACCESS DOOR
32.) OXYGEN FILLER ACCESS DOOR
33.) CANOPY CONTROL SWITCHES
34.) COCKPIT AIR TURBINE ACCESS

1.) WING TIP
2.) LEADING EDGE HINGE FIN ACCESS COVER
3.) DROP TANK POST NUT ACCESS COVER
4.) COMPRESSION AND TENSION POST
5.) WING DISCONNECT ACCESS DOOR
6.) RADOME
7.) RADAR ACCESS DOOR

8.) ENGINE CONTROL AMPLIFIER ACCESS DOOR
9.) FUEL PROBE ACCESS COVER
10.) FUEL FILLER
11.) WING LEADING EDGE ACCESS COVER
12.) COMPASS TRANSMITTER ACCESS COVER
13.) FORWARD ENGINE MOUNT ACCESS DOOR
14.) MAIN LANDING GEAR TRUNNION ACCESS COVER
15.) AILERON ACTUATOR ACCESS COVER
16.) FLIGHT CONTROL ACCESS DOOR

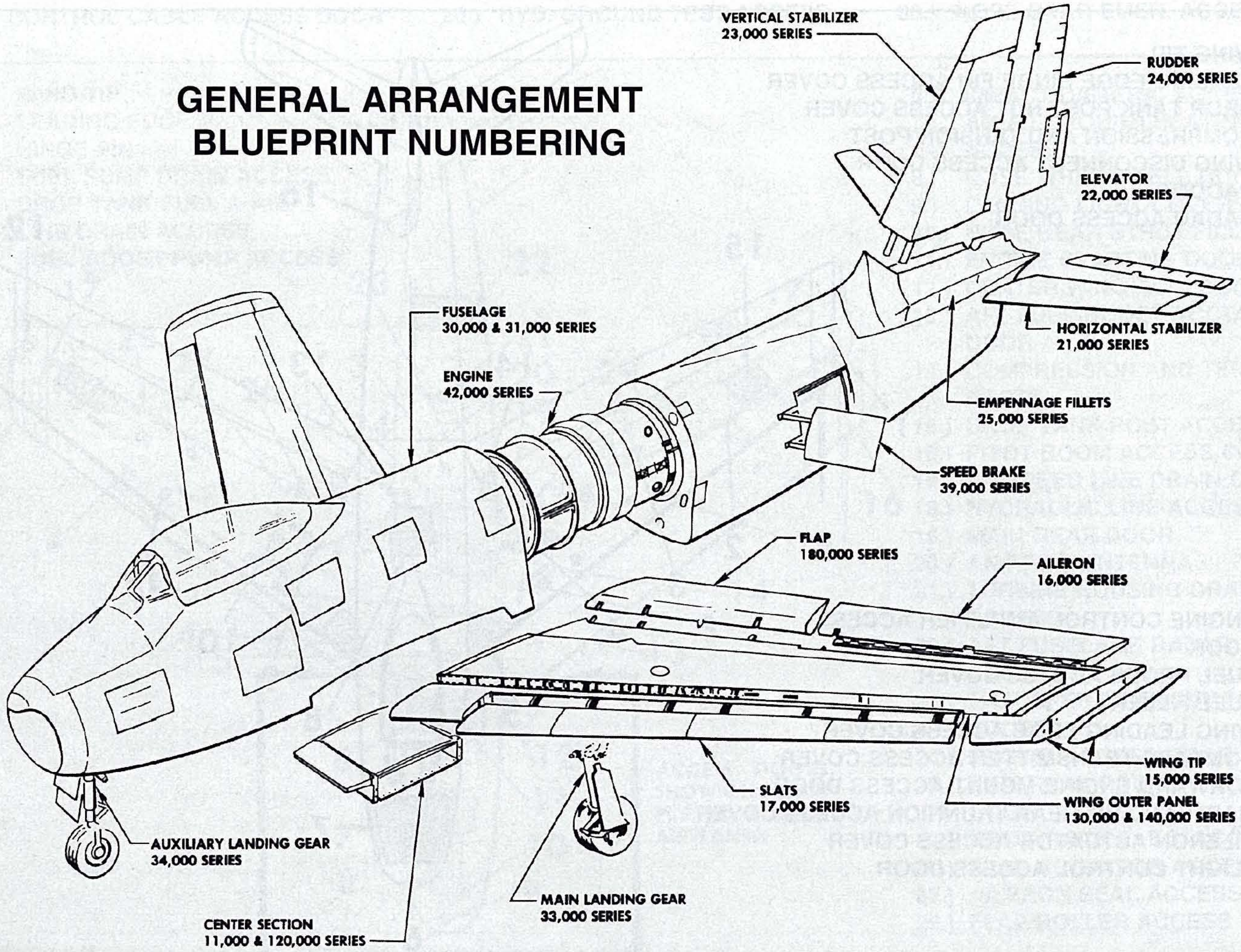


F-86H-5/10 ACCESS AND INSPECTION PROVISIONS

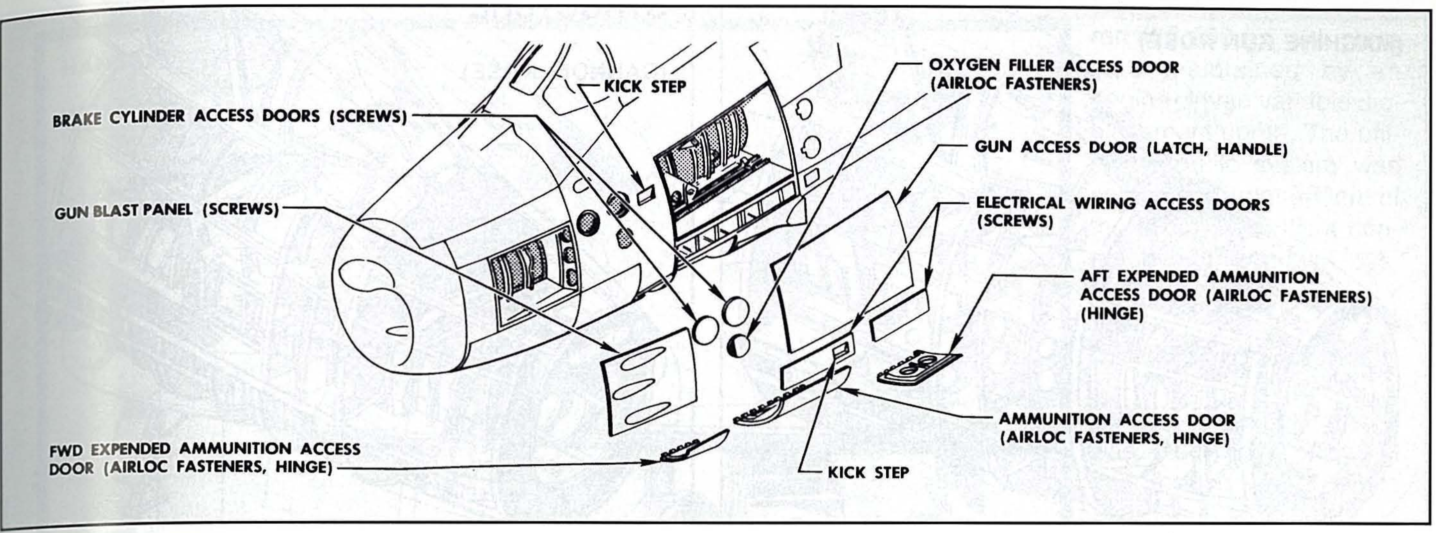


- 1.) GUN BLAST PANEL
- 2.) BRAKE CYLINDER ACCESS
- 3.) GUN BARREL STABILIZER ACCESS
- 4.) GUN ACCESS DOOR
- 5.) HYDRAULIC LINE ACCESS COVER
- 6.) AMMUNITION ACCESS DOOR
- 7.) ENGINE START SYSTEM ACCESS
- 8.) STARTER AIR BOTTLE ACCESS
- 9.) NOSE GEAR EMERGENCY RESET
- 10.) ELECTRICAL EQUIP. ACCESS
- 11.) NOSE GEAR EMER. SYSTEM ACC.
- 12.) CENTER WING ACCESS DOORS
- 13.) WING LEADING EDGE ACCESS
- 14.) CAMERA ACCESS DOOR
- 15.) NOSE WHEEL WELL DOOR
- 16.) ENGINE AIR STARTER DOOR
- 17.) GUN BLAST PANEL
- 18.) BRAKE CYLINDER ACCESS COVER
- 19.) COCKPIT GROUND HEATING
- 20.) GUN BARREL STAB. ACCESS
- 21.) GUN ACCESS DOOR
- 22.) ELECTRICAL ACCESS DOOR
- 23.) AMMUNITION ACCESS DOOR
- 24.) AIR STARTER ACCESS DOOR
- 25.) OXYGEN FILLER ACCESS
- 26.) STARTER AIR BOTTLE ACCESS
- 27.) INVERTER ACCESS DOOR
- 28.) COCKPIT AIR TURBINE ACC.

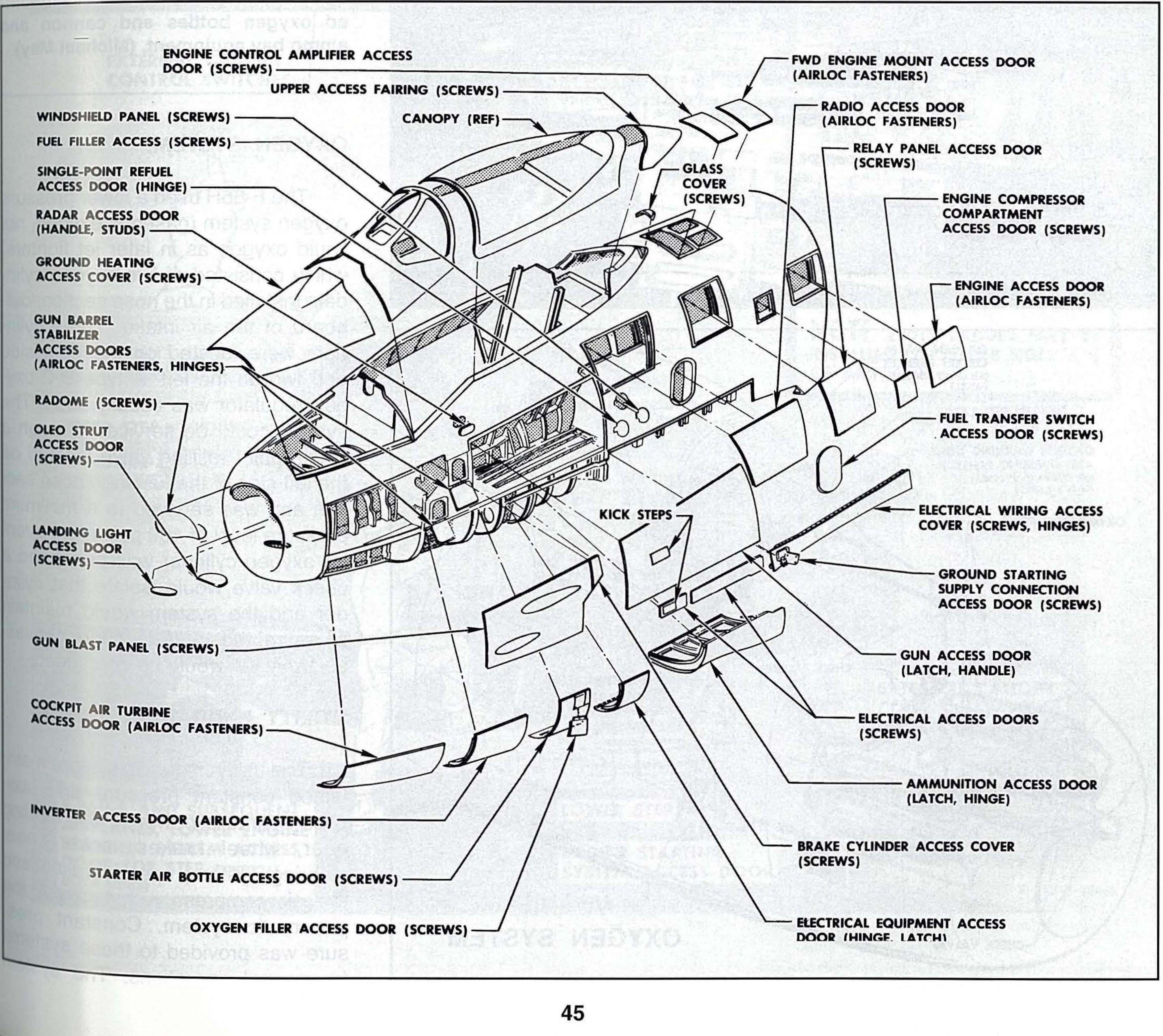
GENERAL ARRANGEMENT BLUEPRINT NUMBERING

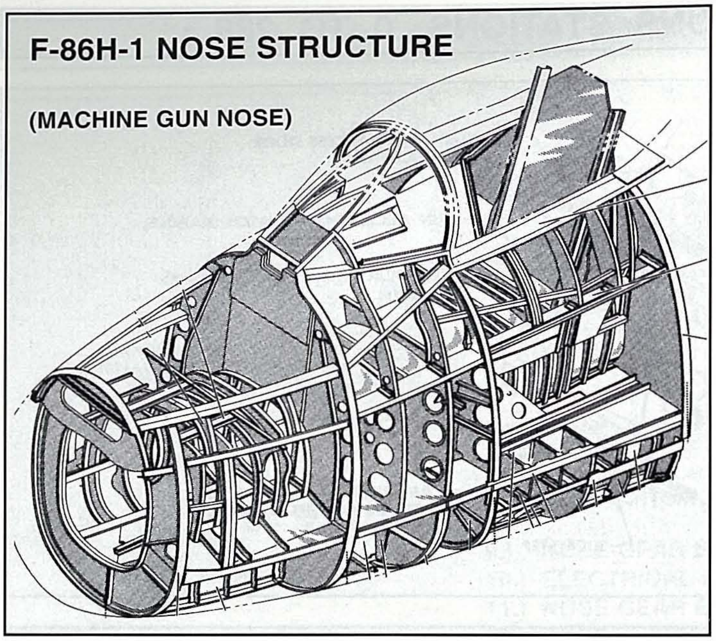


F-86H-1 ACCESS PROVISIONS STATIONS 0 TO 238


KICK STEP
OXYGEN FILLER ACCESS DOOR (AIRLOC FASTENERS)
BRAKE CYLINDER ACCESS DOORS (SCREWS)
GUN ACCESS DOOR (LATCH, HANDLE)
GUN BLAST PANEL (SCREWS)
ELECTRICAL WIRING ACCESS DOORS (SCREWS)
AFT EXPENDED AMMUNITION ACCESS DOOR (AIRLOC FASTENERS) (HINGE)
AMMUNITION ACCESS DOOR (AIRLOC FASTENERS, HINGE)
FWD EXPENDED AMMUNITION ACCESS DOOR (AIRLOC FASTENERS, HINGE)
KICK STEP

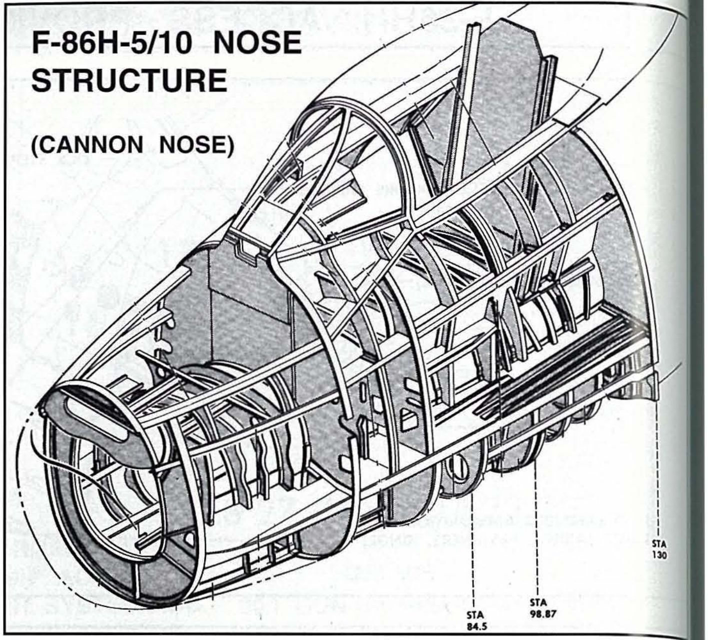
F-86H-5/10 ACCESS PROVISIONS STATIONS 0 TO 238


ENGINE CONTROL AMPLIFIER ACCESS DOOR (SCREWS)
UPPER ACCESS FAIRING (SCREWS)
FWD ENGINE MOUNT ACCESS DOOR (AIRLOC FASTENERS)
WINDSHIELD PANEL (SCREWS)
CANOPY (REF)
RADIO ACCESS DOOR (AIRLOC FASTENERS)
FUEL FILLER ACCESS (SCREWS)
RELAY PANEL ACCESS DOOR (SCREWS)
SINGLE-POINT REFUEL ACCESS DOOR (HINGE)
GLASS COVER (SCREWS)
ENGINE COMPRESSOR COMPARTMENT ACCESS DOOR (SCREWS)
RADAR ACCESS DOOR (HANDLE, STUDS)
GROUND HEATING ACCESS COVER (SCREWS)
ENGINE ACCESS DOOR (AIRLOC FASTENERS)
GUN BARREL STABILIZER ACCESS DOORS (AIRLOC FASTENERS, HINGES)
RADOME (SCREWS)
FUEL TRANSFER SWITCH ACCESS DOOR (SCREWS)
OLEO STRUT ACCESS DOOR (SCREWS)
ELECTRICAL WIRING ACCESS COVER (SCREWS, HINGES)
KICK STEPS
LANDING LIGHT ACCESS DOOR (SCREWS)
GROUND STARTING SUPPLY CONNECTION ACCESS DOOR (SCREWS)
GUN BLAST PANEL (SCREWS)
GUN ACCESS DOOR (LATCH, HANDLE)
COCKPIT AIR TURBINE ACCESS DOOR (AIRLOC FASTENERS)
ELECTRICAL ACCESS DOORS (SCREWS)
AMMUNITION ACCESS DOOR (LATCH, HINGE)
INVERTER ACCESS DOOR (AIRLOC FASTENERS)
BRAKE CYLINDER ACCESS COVER (SCREWS)
STARTER AIR BOTTLE ACCESS DOOR (SCREWS)
OXYGEN FILLER ACCESS DOOR (SCREWS)
ELECTRICAL EQUIPMENT ACCESS DOOR (HINGE, LATCH)



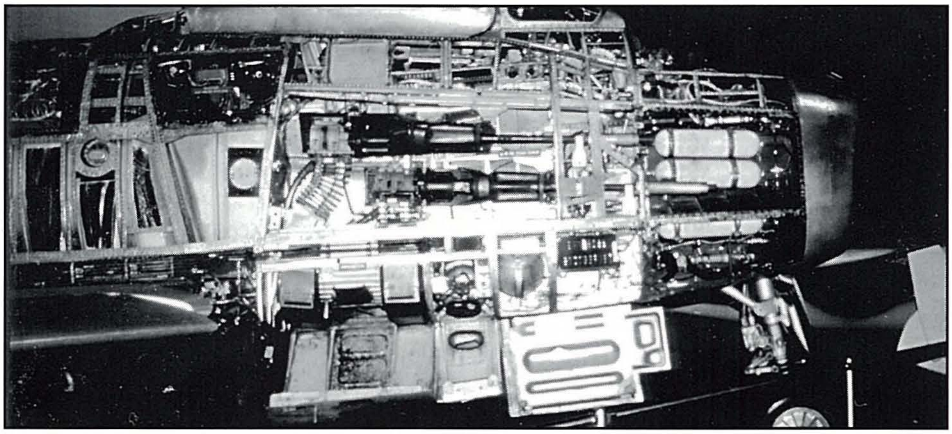
F-86H-1 NOSE STRUCTURE

(MACHINE GUN NOSE)



F-86H-5/10 NOSE STRUCTURE

(CANNON NOSE)



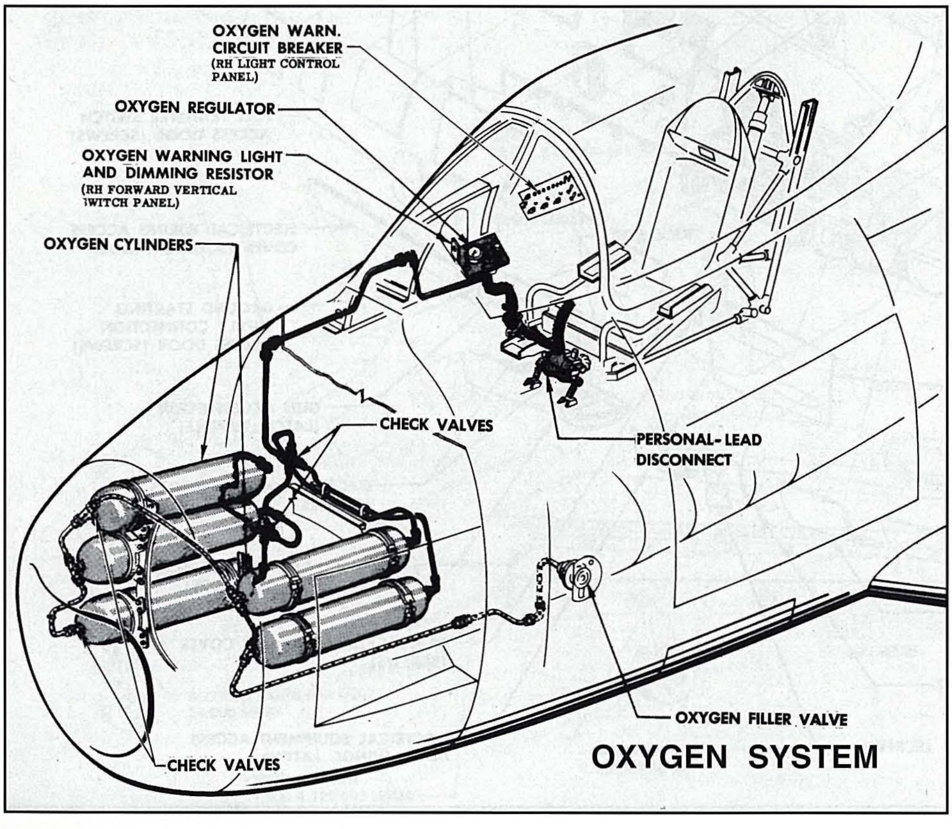
At left, Air Force Museum F-86H cutaway showing location of nose mounted oxygen bottles and cannon and ammo bay equipment. (Michael May)

OXYGEN SYSTEM:

The F-86H used a lower pressure oxygen system (gaseous oxygen, not liquid oxygen as in later jet fighters) which consisted of five oxygen cylinders installed in the nose section, outboard of the air intake. Three cylinders were located on the right side and two on the left. A type D-2 oxygen regulator was usually used. The system could be serviced through a single point refilling valve located on the left side of the fuselage nose section and was serviced to a minimum pressure level of 400 psi. In the event an oxygen cylinder was punctured a check valve would isolate that cylinder and the system would maintain pressure, though the amount of available oxygen would be decreased.

UTILITY HYDRAULIC POWER:

The utility hydraulic system maintained constant pressure and supplied hydraulic power to the landing gear, wheel brakes, nose wheel steering system, speed brakes and the air compressor that drives the pneumatic system. Constant pressure was provided to these systems for normal operations. The system



OXYGEN WARN. CIRCUIT BREAKER (RH LIGHT CONTROL PANEL)
OXYGEN REGULATOR
OXYGEN WARNING LIGHT AND DIMMING RESISTOR (RH FORWARD VERTICAL SWITCH PANEL)
OXYGEN CYLINDERS
CHECK VALVES
PERSONAL-LEAD DISCONNECT
OXYGEN FILLER VALVE
CHECK VALVES

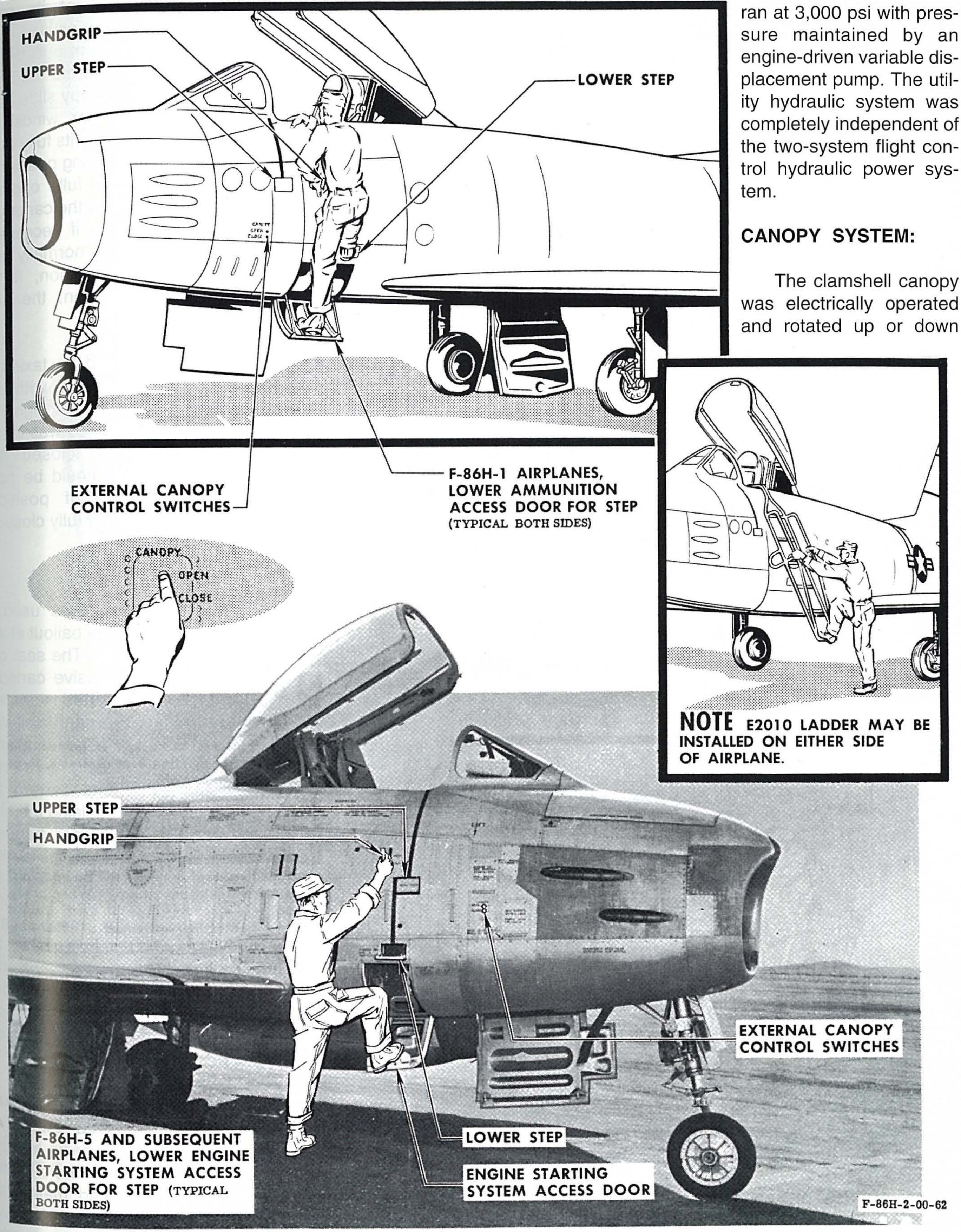
OXYGEN SYSTEM

COCKPIT ENTRY AND CANOPY OPERATION

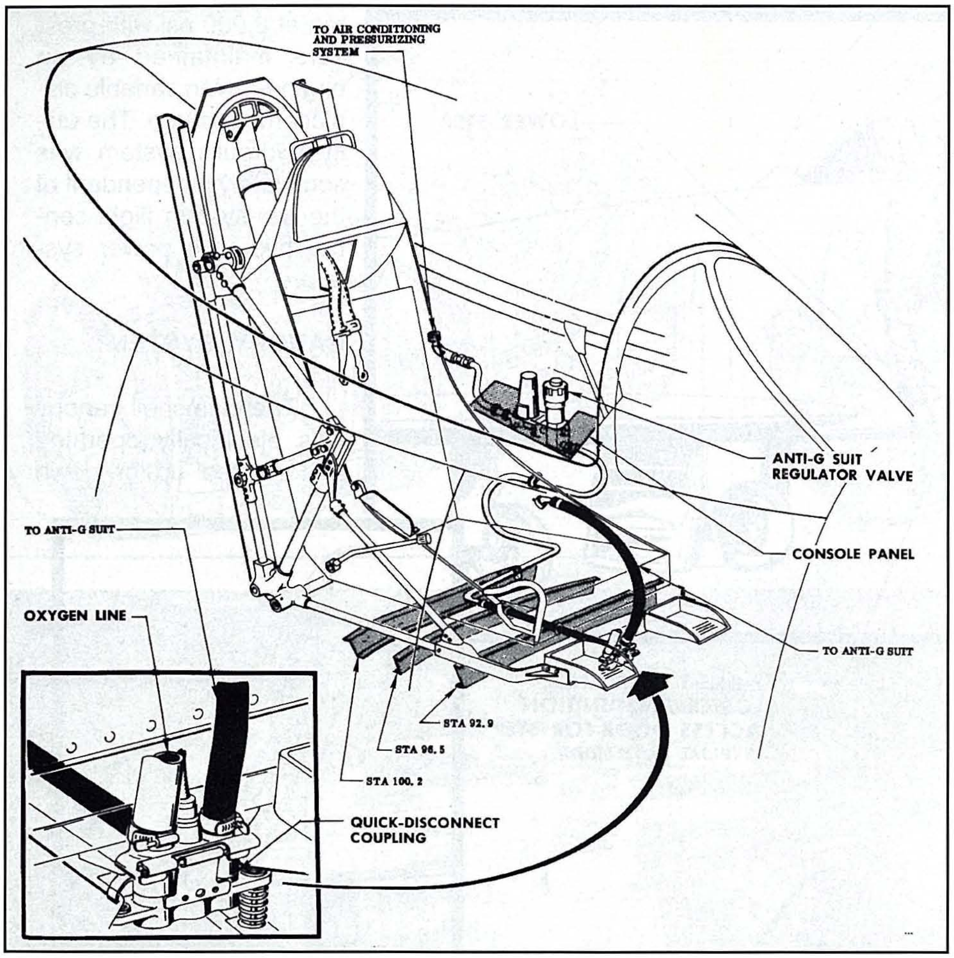
ran at 3,000 psi with pressure maintained by an engine-driven variable displacement pump. The utility hydraulic system was completely independent of the two-system flight control hydraulic power system.

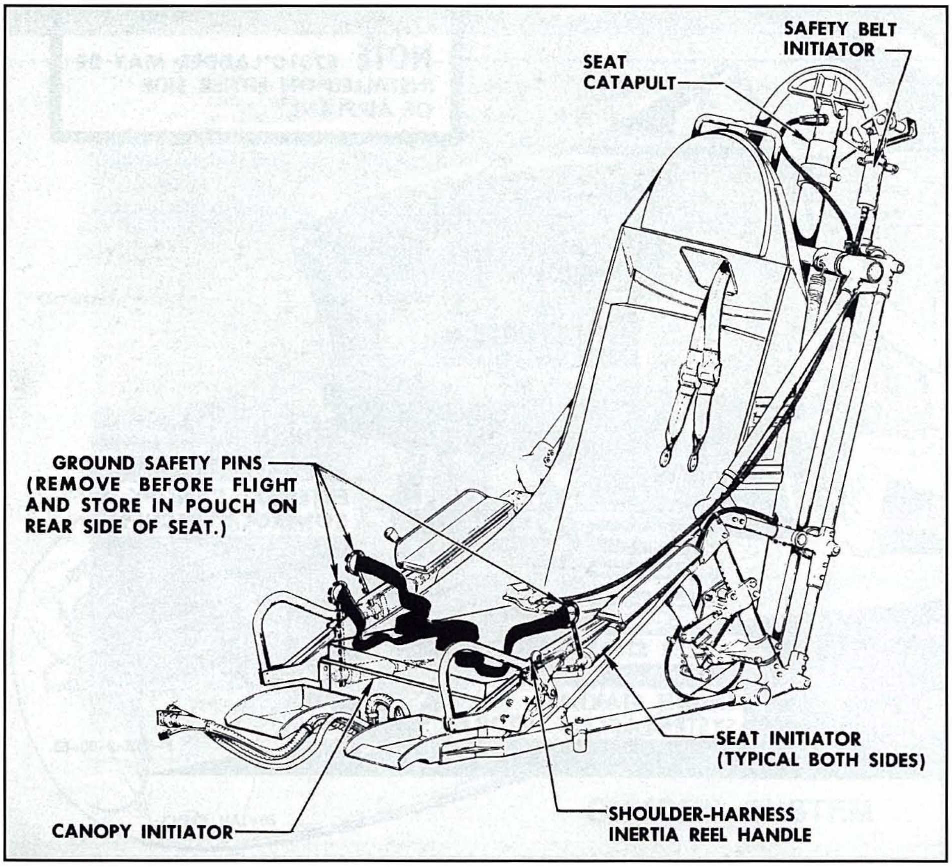
CANOPY SYSTEM:

The clamshell canopy was electrically operated and rotated up or down


HANDGRIP
UPPER STEP
LOWER STEP
CANOPY OPEN CLOSE
EXTERNAL CANOPY CONTROL SWITCHES
F-86H-1 AIRPLANES, LOWER AMMUNITION ACCESS DOOR FOR STEP (TYPICAL BOTH SIDES)
CANOPY
OPEN
CLOSE
NOTE E2010 LADDER MAY BE INSTALLED ON EITHER SIDE OF AIRPLANE.
UPPER STEP
HANDGRIP
EXTERNAL CANOPY CONTROL SWITCHES
LOWER STEP
ENGINE STARTING SYSTEM ACCESS DOOR
F-86H-5 AND SUBSEQUENT AIRPLANES, LOWER ENGINE STARTING SYSTEM ACCESS DOOR FOR STEP (TYPICAL BOTH SIDES)
F-86H-2-00-62

F-86H EJECTION SEAT


TO AIR CONDITIONING AND PRESSURIZING SYSTEM
ANTI-G SUIT REGULATOR VALVE
TO ANTI-G SUIT
CONSOLE PANEL
OXYGEN LINE
TO ANTI-G SUIT
STA 92.9
STA 96.5
STA 100.2
QUICK-DISCONNECT COUPLING


SAFETY BELT INITIATOR
SEAT CATAPULT
GROUND SAFETY PINS (REMOVE BEFORE FLIGHT AND STORE IN POUCH ON REAR SIDE OF SEAT.)
SEAT INITIATOR (TYPICAL BOTH SIDES)
SHOULDER-HARNESS INERTIA REEL HANDLE
CANOPY INITIATOR

about a hinge point at its rear. Canopy actuation was initiated from inside the cockpit or from outside the airplane (through external control). When opened, the canopy slide back about an inch to clear windshield latches before it rOSE to its fully open position, the canopy being positioned at a 32° angle when fully opened. Provision was made for the canopy to be operated manually, if necessary. While the canopy was normally jettisoned during seat ejection, if the canopy failed to jettison, the seat could be fired through it.

The airplane could be taxied at speeds up to 50 knots with the canopy fully open. A warning light illuminated when the canopy was in any position except fully closed and latched. The canopy could be positioned in a variety of positions between fully open and fully closed.

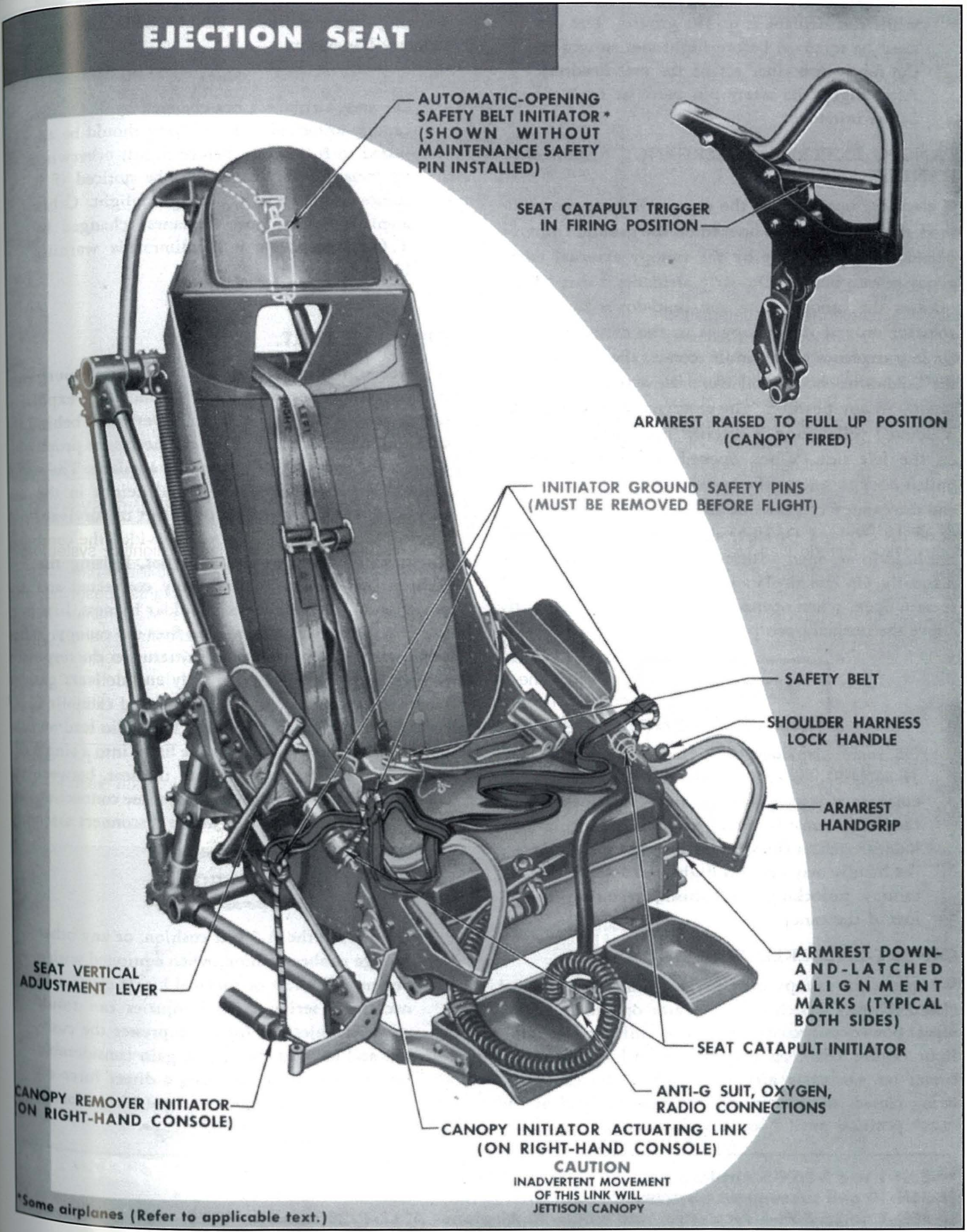
EJECTION SEAT:

The ejection seat was used to carry out an emergency bailout at any speed or flight attitude. The seat catapult was of the explosive cartridge type and was mounted vertically behind the seat. The seat itself was adjustable vertically. The seat armrests were mechanically connected and raising either one caused the other to rise as well. Raising the armrests locked the shoulder harness, and lifted both triggers to the cocked position and this, in turn, fired the canopy. Squeezing either trigger actuated an initiator, mechanically, delivering gaseous pressure to the pneumatically operated catapult firing system and this fired the catapult. Radio and anti-G suit oxygen hoses automatically disconnected when the seat was ejected.

COCKPIT AIR CONDITIONING AND PRESSURIZATION SYSTEM:

Primary functions of the air conditioning system included maintaining cockpit pressurization and supplying heated or cooled air to maintain cockpit temperature according to pilo

F-86H EJECTION SEAT

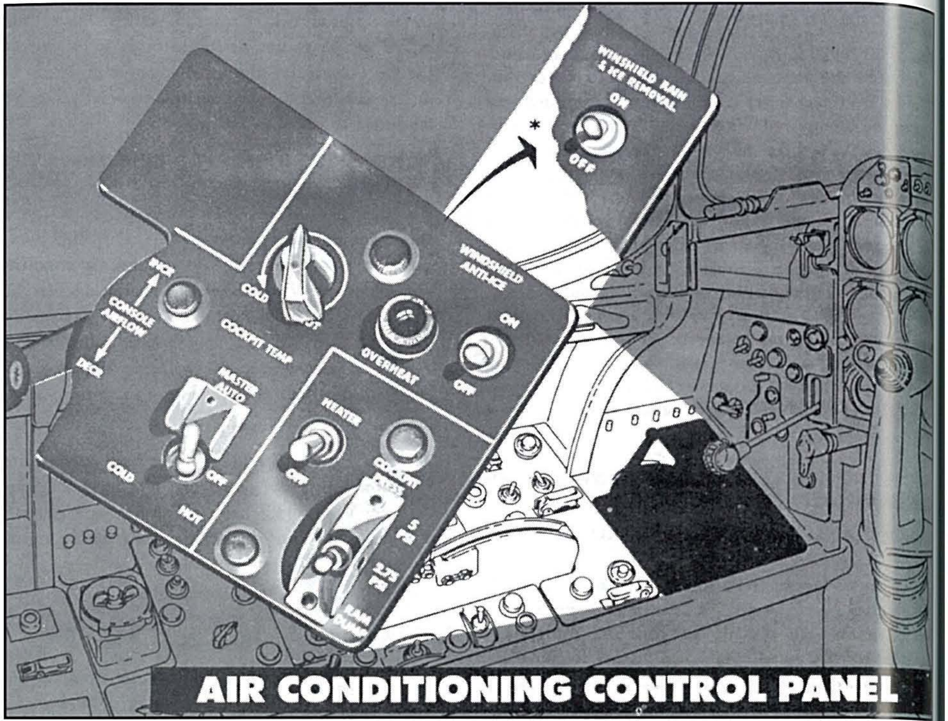

EJECTION SEAT
AUTOMATIC-OPENING SAFETY BELT INITIATOR* (SHOWN WITHOUT MAINTENANCE SAFETY PIN INSTALLED)
SEAT CATAPULT TRIGGER IN FIRING POSITION
ARMREST RAISED TO FULL UP POSITION (CANOPY FIRED)
INITIATOR GROUND SAFETY PINS (MUST BE REMOVED BEFORE FLIGHT)
SAFETY BELT
SHOULDER HARNESS LOCK HANDLE
ARMREST HANDGRIP
ARMREST DOWN-AND-LATCHED ALIGNMENT MARKS (TYPICAL BOTH SIDES)
SEAT CATAPULT INITIATOR
ANTI-G SUIT, OXYGEN, RADIO CONNECTIONS
CANOPY INITIATOR ACTUATING LINK (ON RIGHT-HAND CONSOLE)
CAUTION
INADVERTENT MOVEMENT OF THIS LINK WILL JETTISON CANOPY
CANOPY REMOVER INITIATOR (ON RIGHT-HAND CONSOLE)
SEAT VERTICAL ADJUSTMENT LEVER
RIGHT
LEFT
*Some airplanes (Refer to applicable text.)

selected settings. Heated and compressed air from the last stage of the engine air compressor was routed through a primary heat exchanger for initial cooling. It was then routed around or through a refrigeration unit, depending on pilot selected temperature, to maintain appropriate cockpit temperature. Cockpit air temperature was regulated automatically by mixing hot air from the compressor and cold air from the refrigeration unit. This was done by proper positioning of the hot air bypass valve and the heat exchanger modulating valve.

Cockpit pressure was maintained, according to a predetermined schedule, for various flight altitudes via a pressure regulator which controlled the outflow of cockpit air. The cockpit wasn't pressurized from sea level to approximately 12,500 altitude. Above 12,500 feet, cockpit pressure was regulated according to either of two schedules: a 2.75 psi schedule or a 5 psi schedule. If the 2.75 psi schedule was used, a 12,500 foot cockpit altitude was maintained up to 21,000 feet and thereafter a constant pressure differential of 2.75 psi was maintained. Use of the 5 psi schedule produced a 12,500 foot cockpit pressure up to 31,000 feet, after which a constant pressure differential of 5 psi was maintained.

A dump valve, when selected by the pilot, released all cabin pressure and automatically relieved all pressure in excess of 5.3 psi.

AIR CONDITIONING CONTROL PANEL



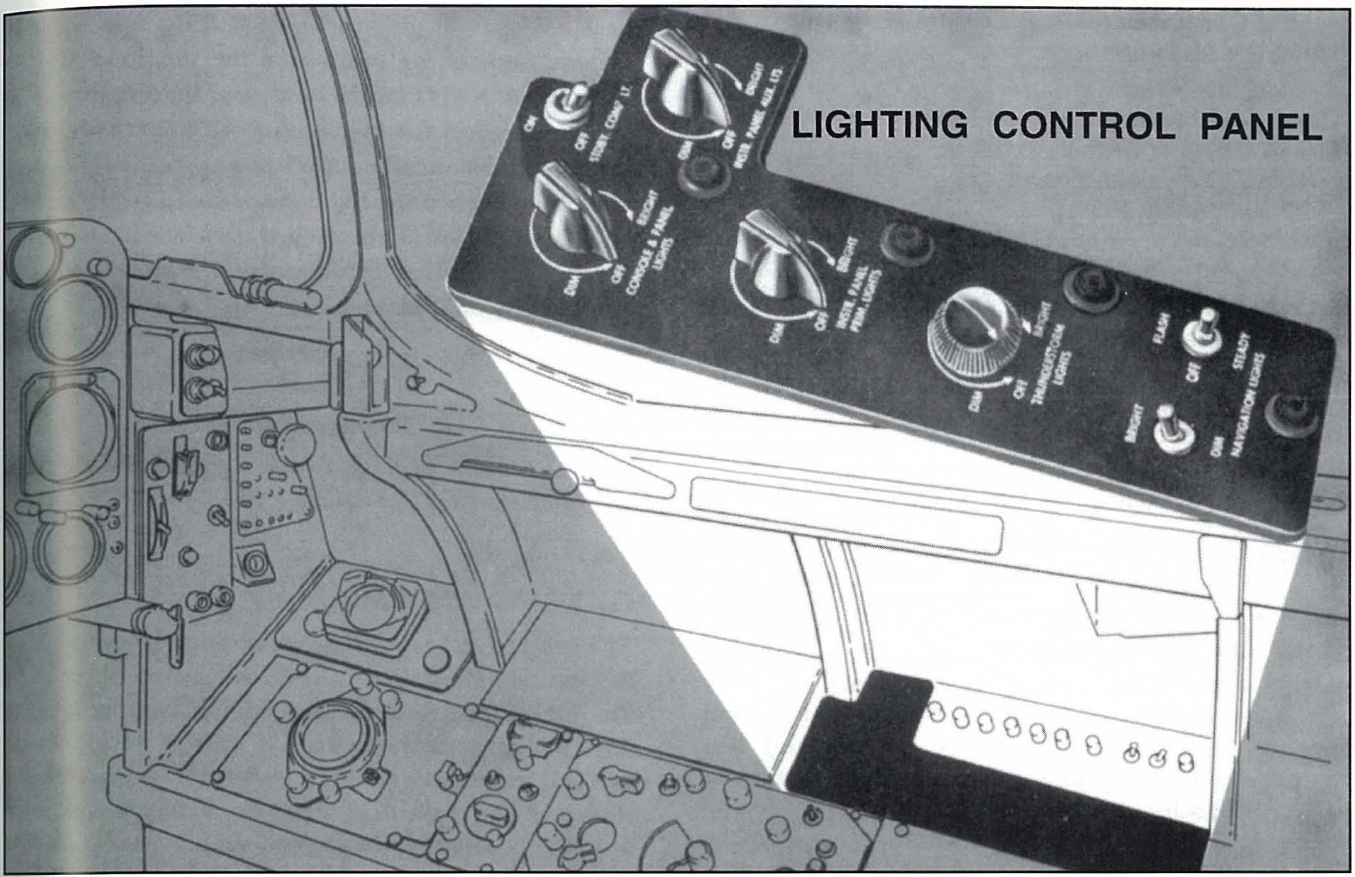
EXTERIOR LIGHTING SYSTEM:

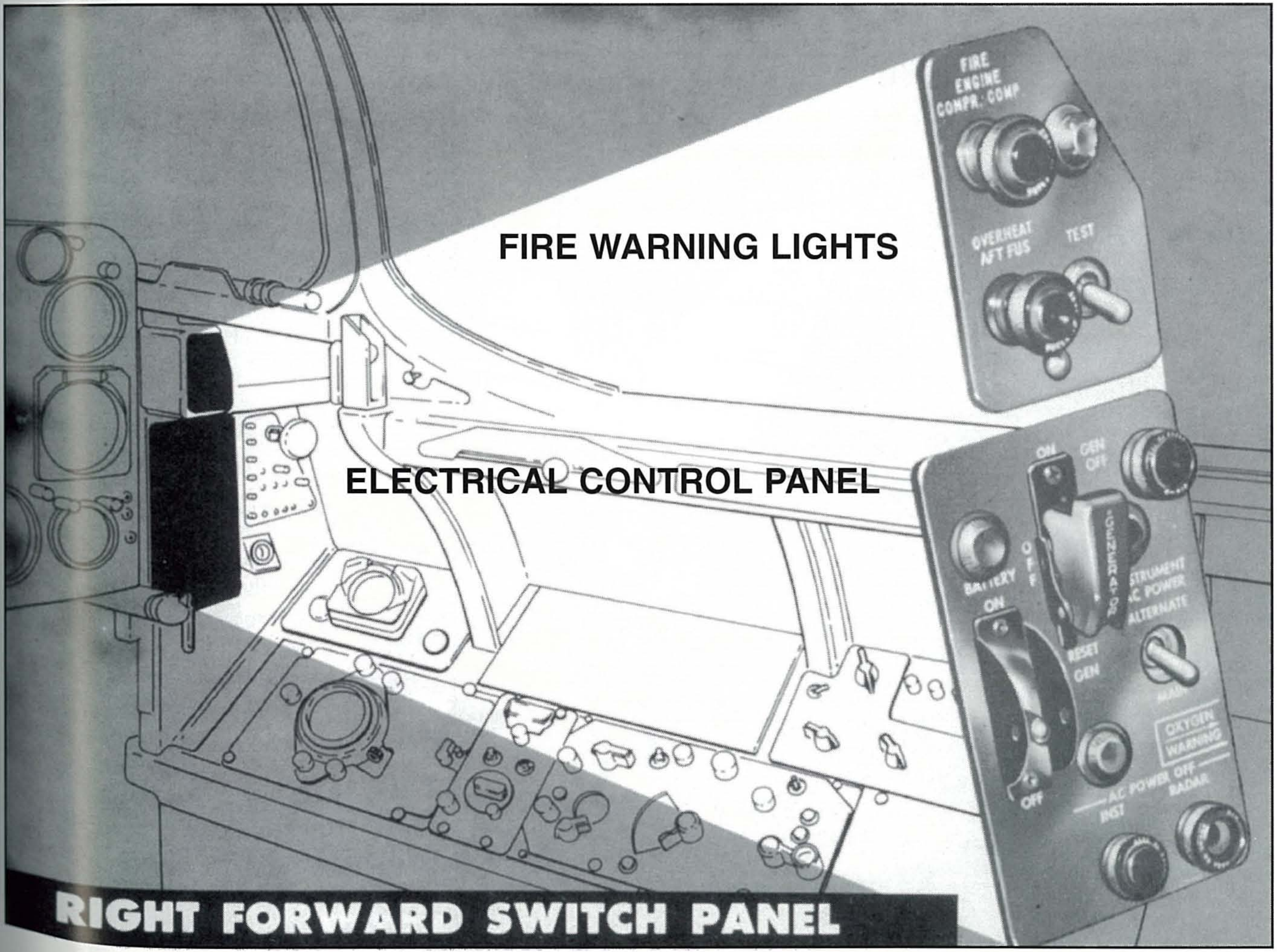
The exterior lighting system was composed of landing lights, taxi lights, formation lights (not initially seen on this type aircraft), and navigation lights. Navigation lights were located on the left and right wing tips and atop the vertical stabilizer and could shine steadily or flash intermittently. Aircraft modified under T.O. 1F-86H-682 had anti-collision lights installed on the top and bottom of the fuselage as an aid in preventing mid-air collisions.

INTERIOR LIGHTING SYSTEM:

The interior lighting system was composed of auxiliary panel lights, console flood lights, post-type and ring-type lights to illuminate instruments, indirect console panel lighting, a cockpit utility light, position indicator lights and thunderstorm lights. Some of the lights could be dimmed.

Below, F-86H ejection seat tests at Edwards AFB. (USAF)



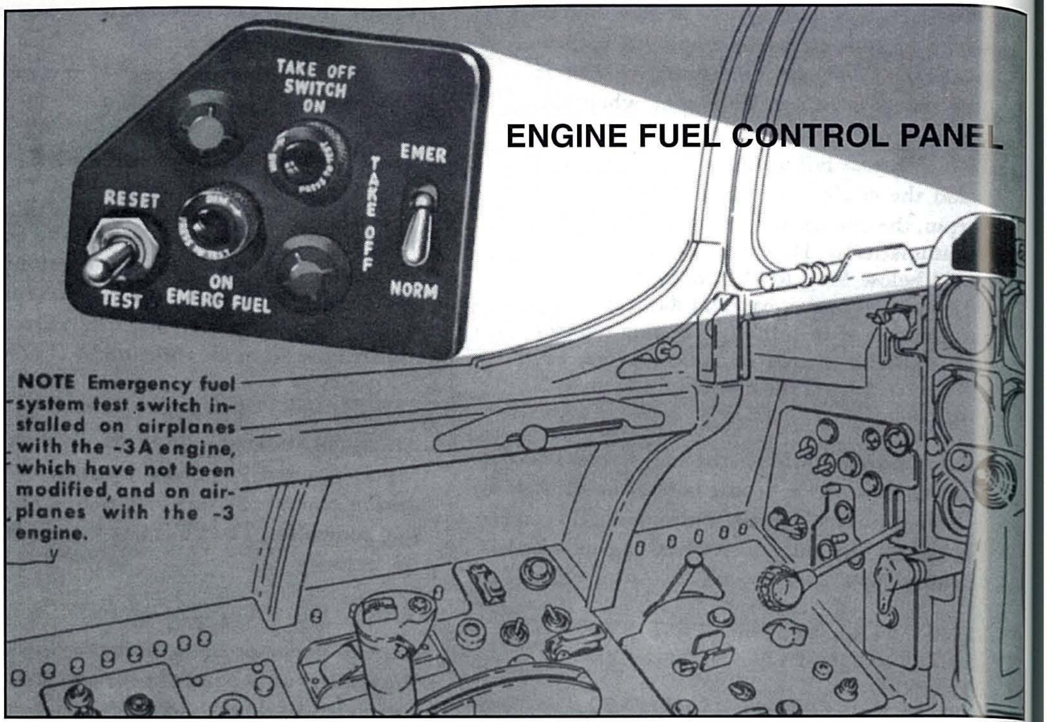


RIGHT FORWARD SWITCH PANEL

ELECTRICAL POWER SUPPLY:

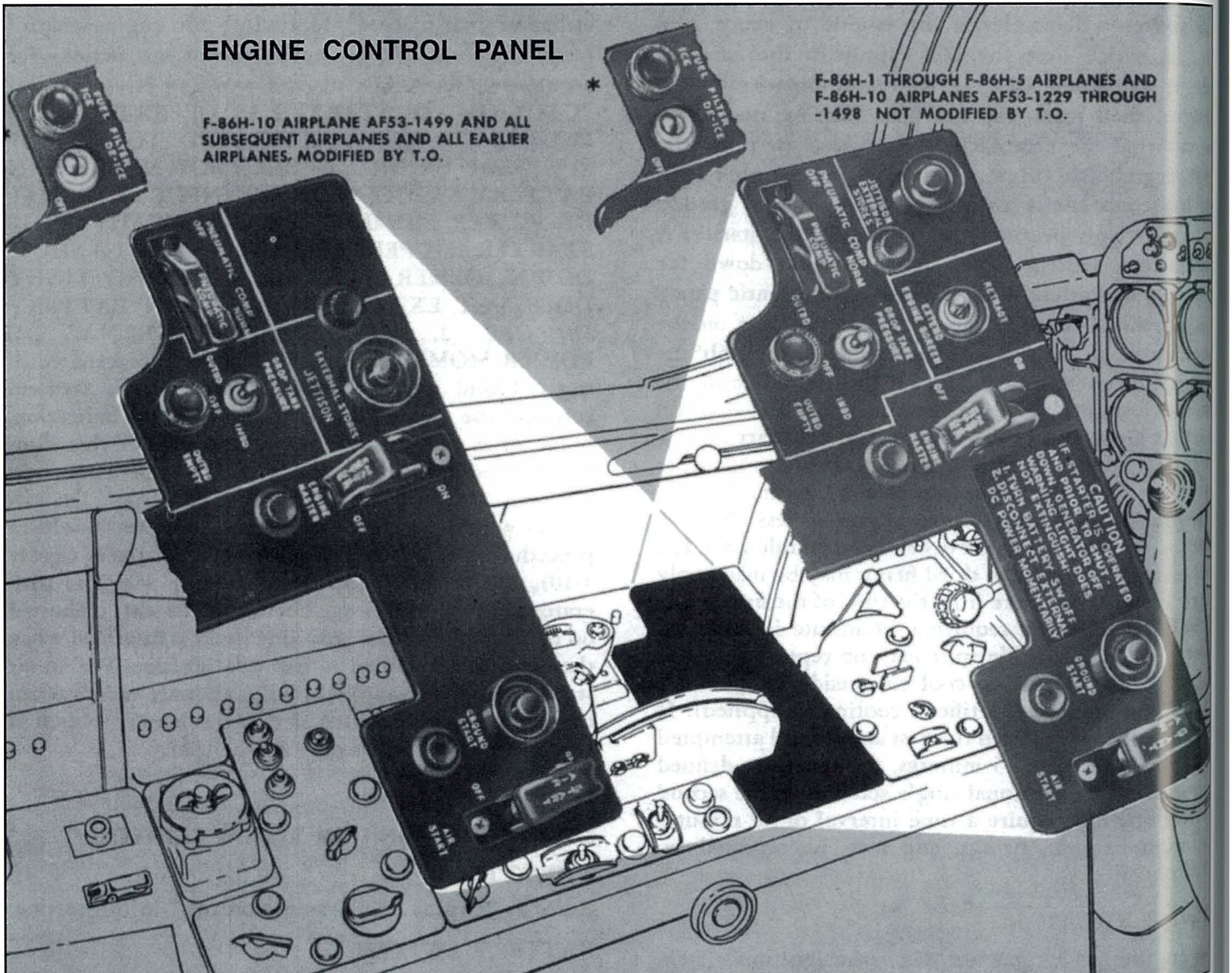
The F-86H had both AC and DC electrical power systems. The DC system produced 28 volts and was powered by a 400 amp engine-driven generator. The generator would come on-line when the engine rpm reached 38%. Standby DC power was available from a 24 volt battery. The airplane was capable of accepting DC power through a built-in receptacle, the power coming from an external generator source.

The AC system was composed of one single-phase inverter and two three-phase inverters.



ENGINE FUEL CONTROL PANEL

NOTE Emergency fuel system test switch installed on airplanes with the -3A engine, which have not been modified, and on airplanes with the -3 engine.



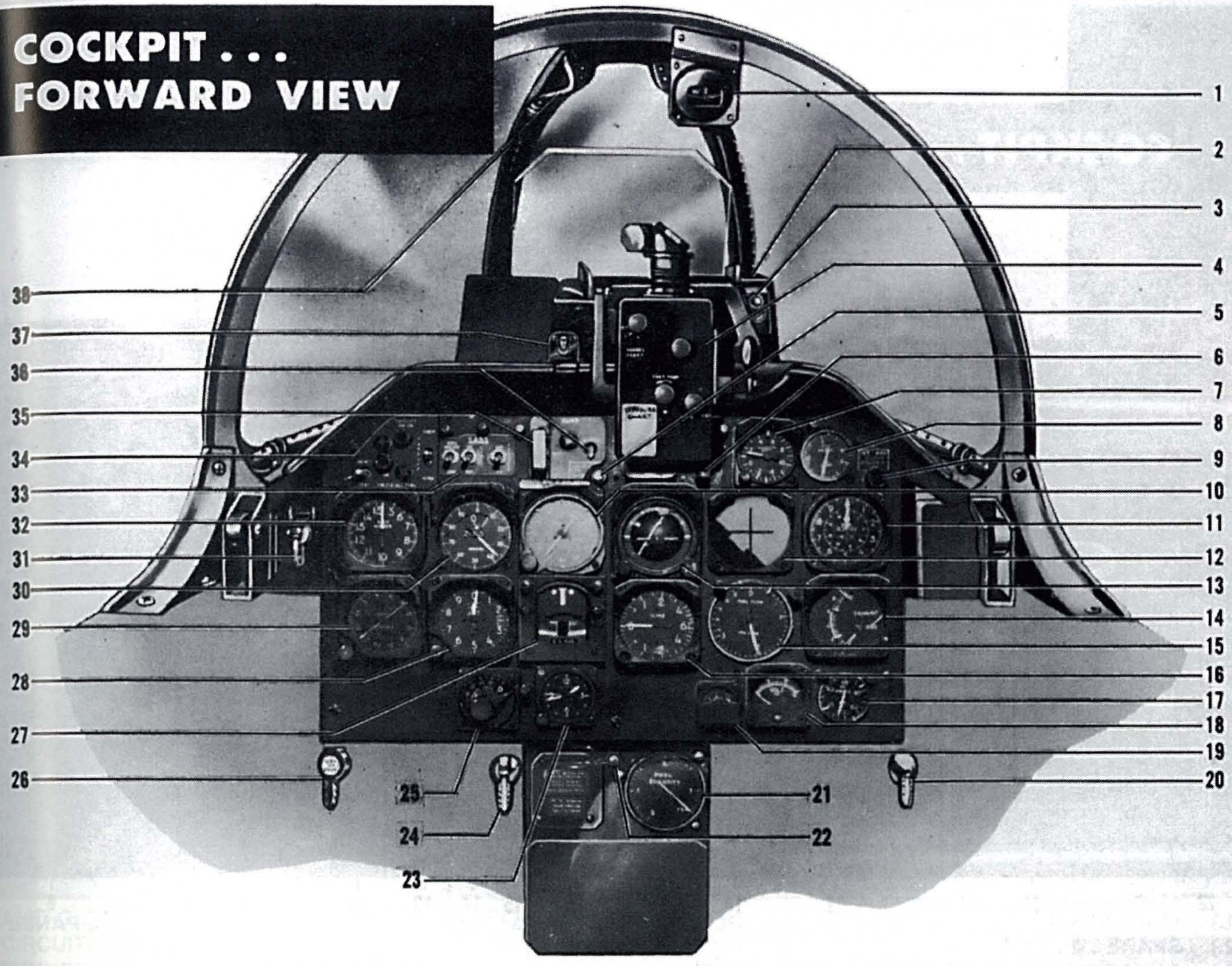
ENGINE CONTROL PANEL

F-86H-10 AIRPLANE AF53-1499 AND ALL SUBSEQUENT AIRPLANES AND ALL EARLIER AIRPLANES, MODIFIED BY T.O.

F-86H-1 THROUGH F-86H-5 AIRPLANES AND F-86H-10 AIRPLANES AF53-1229 THROUGH -1498 NOT MODIFIED BY T.O.

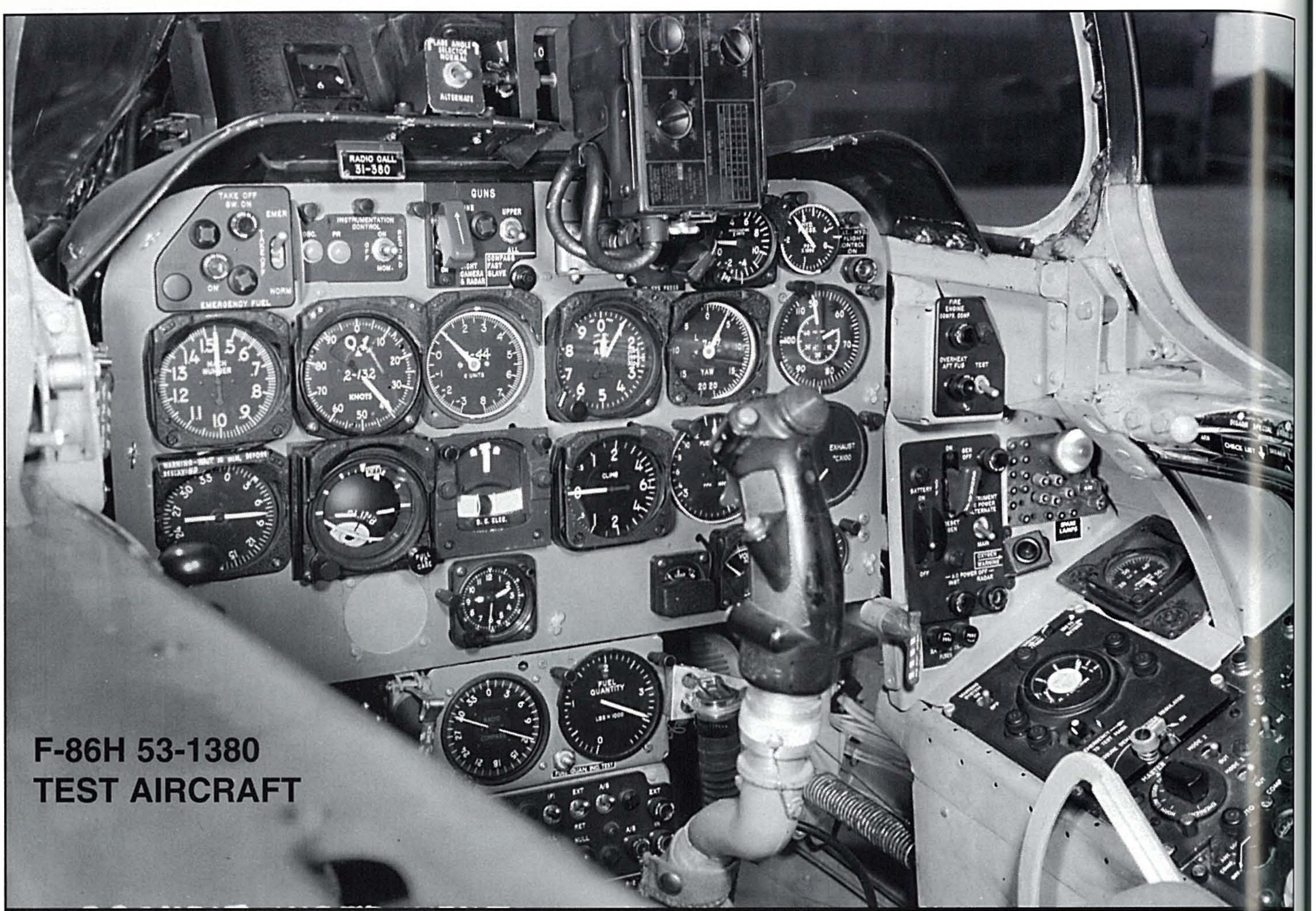
CAUTION
IF STARTER IS OPERATED AND PRIOR TO SHUT-DOWN, GENERATOR OFF WARNING LIGHT DOES NOT EXTINGUISH:
1. TURN BATTERY SW OFF
2. DISCONNECT EXTERNAL DC POWER MOMENTARILY

COCKPIT . . . FORWARD VIEW



1. Stand-by Compass
2. A-4 Sight
3. Special Store Reset Light
4. Gun Camera
5. Slaved Gyro Magnetic Compass Fast Slaving Button
6. Hydraulic Pressure Gage Selector Switch
7. Accelerometer
8. Hydraulic Pressure Gage
9. Alternate-on Warning Light (Flight Control Alternate Hydraulic System)
10. Slaved Gyro Magnetic Compass
11. Tachometer
12. LABS Dive-and-Roll Indicator*
13. Attitude Indicator*
14. Exhaust Temperature Gage
15. Fuel Flow Indicator
16. Rate-of-Climb Indicator
17. Oil Pressure Gage
18. Voltmeter
19. Electrical Loadmeter
20. Landing Gear Emergency Release Handl
21. Fuel Quantity Gage
22. Fuel Quantity Gage Test Button
23. Clock
24. Emergency Jettison Handle
25. Bomb-Target Wind Control
26. Flight Control Emergency Change-over Handle
27. Turn-and-Bank Indicator
28. Altimeter
29. Radio Compass Indicator
30. Airspeed Indicator
31. Special Store Jettison Handle
32. Machmeter
33. LABS Control Panel*
34. Engine Fuel Control Panel
35. Gun Safety Switch
36. Gun Selector Switch*
37. LABS Gyro Angle Selector Switch*
38. Handhold

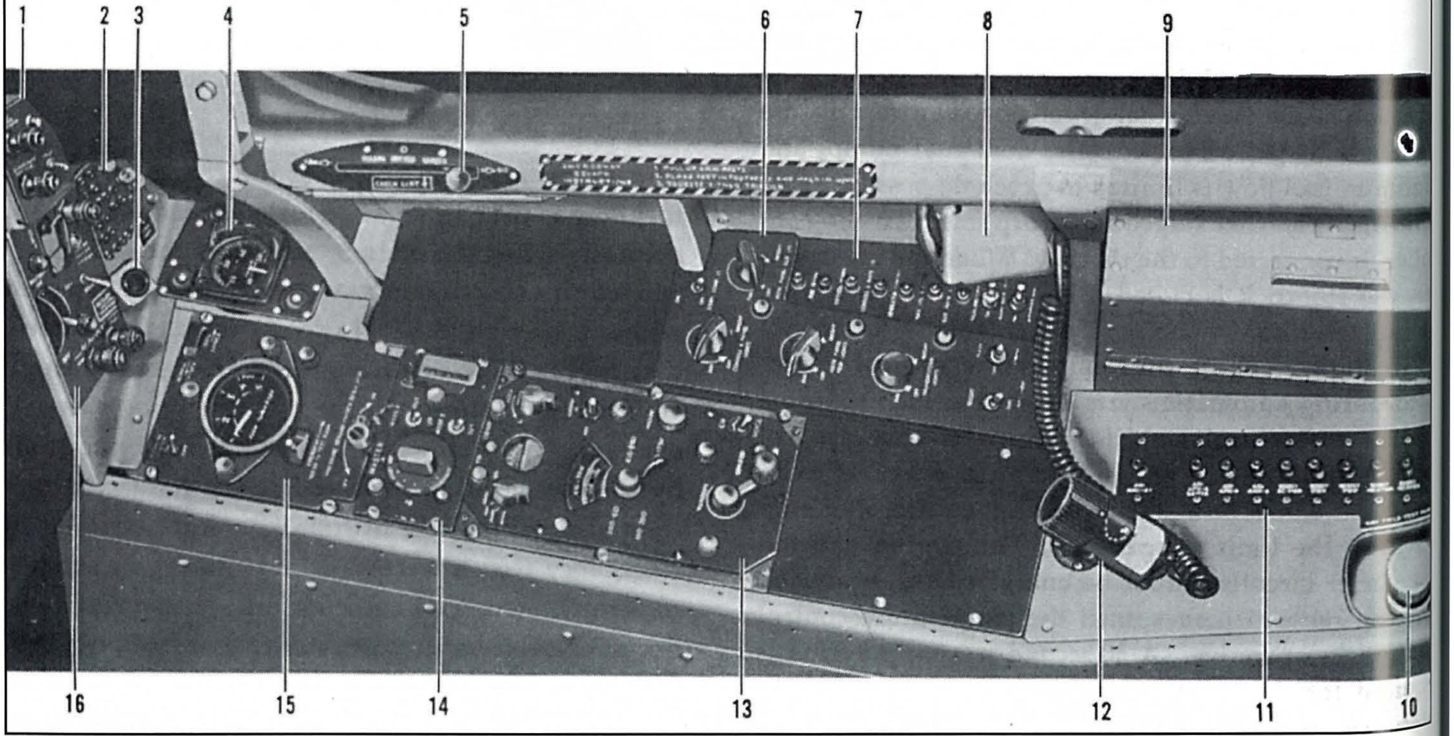
*Some airplanes (see applicable text)

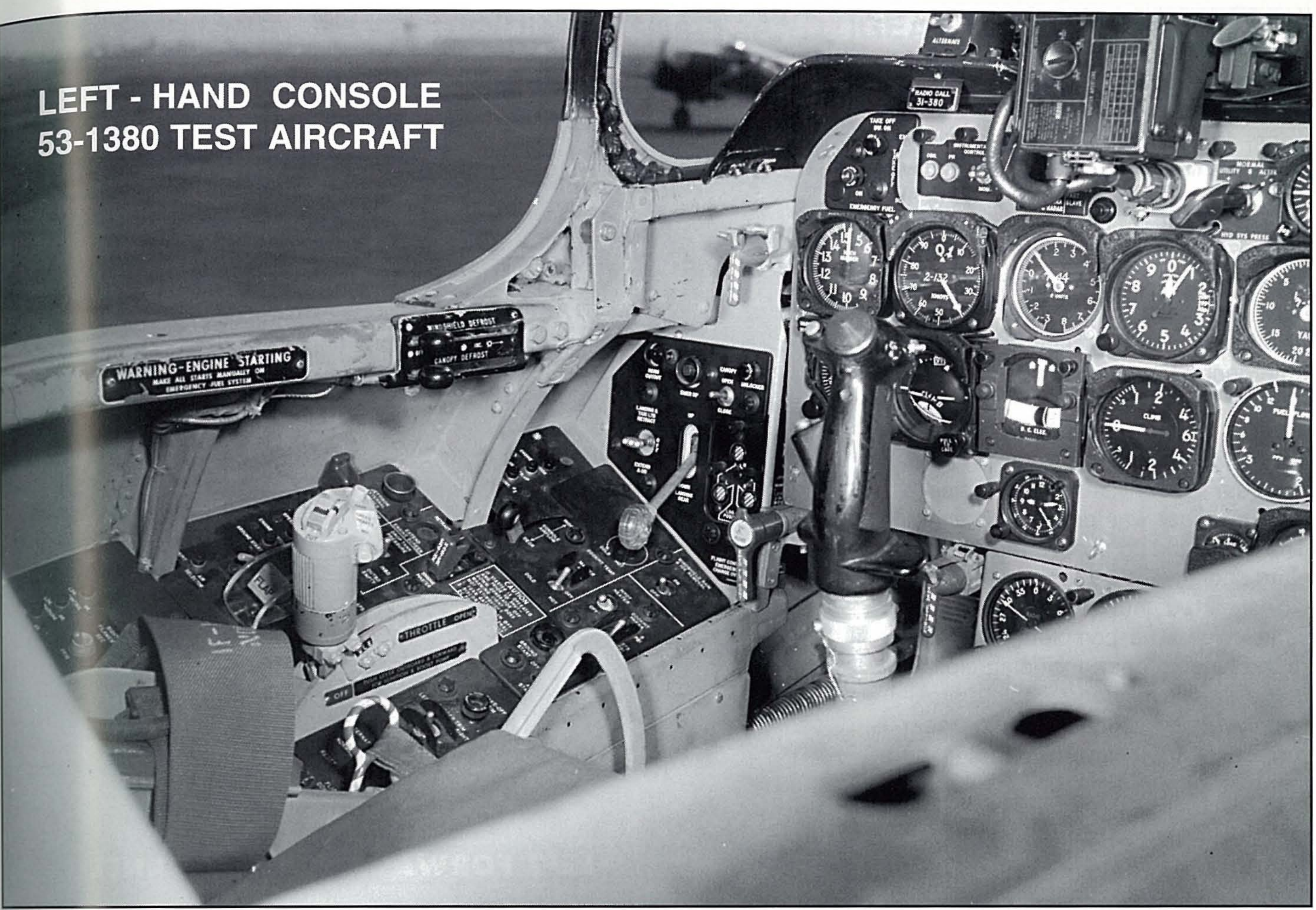


F-86H 53-1380
TEST AIRCRAFT

1.) FIRE-WARNING PANEL
2.) SPARE LAMPS
3.) OXYGEN WARNING LIGHT
4.) CABIN PRESSURE ALTIMETER
5.) SPECIAL STORE DISARM LEVER
6.) LIGHTING CONTROL PANEL
7.) CIRCUIT-BREAKER PANEL
8.) THUNDERSTORM LIGHT
9.) MAP CASE
10.) SIGHT GROUND TEST PLUG
11.) CIRCUIT-BREAKER PANEL
12.) COCKPIT UTILITY LIGHT
13.) RADIO COMPASS CONTROL PANEL
14.) IFF CONTROL PANEL
15.) OXYGEN REGULATOR CONTROL PANEL
16.) RIGHT FORWARD SWITCH PANEL

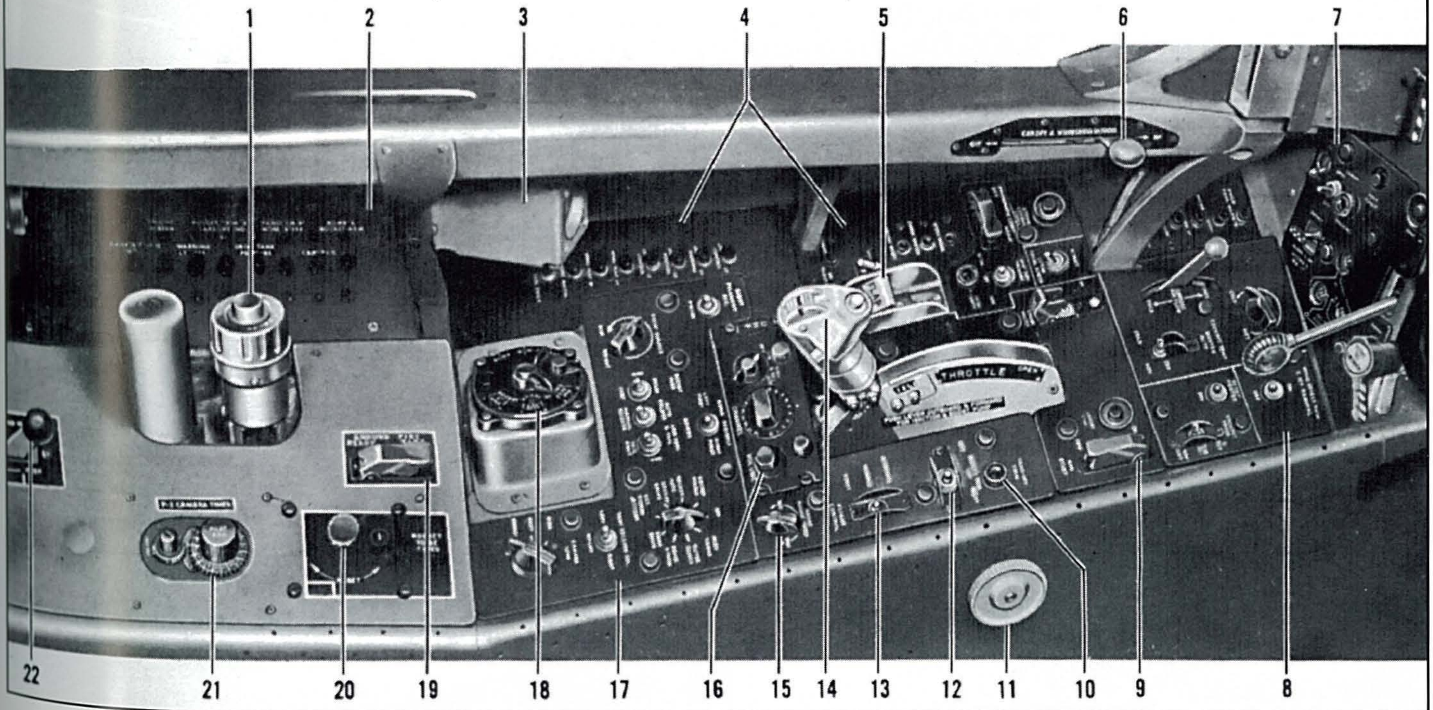
RIGHT - HAND CONSOLE





LEFT - HAND CONSOLE
53-1380 TEST AIRCRAFT

1.) ANTI-G SUIT VALVE
2.) CIRCUIT-BREAKER PANEL
3.) THUNDERSTORM LIGHT
4.) CIRCUIT-BREAKER PANEL
5.) WING FLAP LEVER
6.) CANOPY DEFROST HANDLE
7.) LEFT FORWARD CONT. PNL.
8.) AIR COND. CONTROL PNL.
9.) ENGINE CONTROL PANEL
10.) TAKE-OFF TRIM IND. LIGHT
11.) THROTTLE FRICTION WHEEL
12.) RUDDER TRIM SWITCH
13.) FLIGHT CONTROL SWITCH
14.) THROTTLE
15.) RADAR RANGE SWEEP RHEOSTAT
16.) UHF COMMAND RADIO CONTROL PANEL
17.) ARMAMENT CONTROL PANEL
18.) SIGHT FUNCTION SELECTOR UNIT
19.) GROUND FIRE SAFETY SWITCH
20.) ROCKET PROJECTOR RELEASE
21.) STRIKE CAMERA TIMER



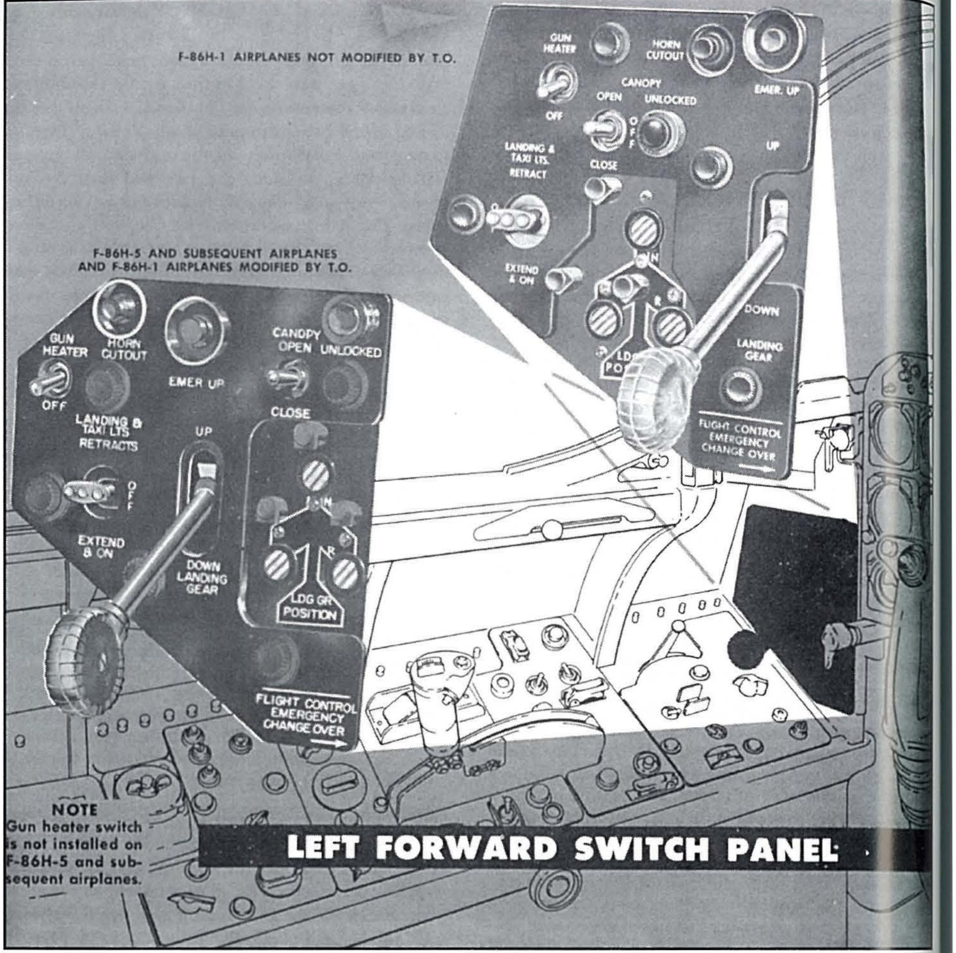
LANDING GEAR SYSTEMS:

The F-86H had a fully retractable tricycle landing gear. The landing gear and associated doors were hydraulically actuated and electrically controlled and sequenced. Electrical power came from the DC system. For emergency extension of the nose landing gear, a pneumatic system was provided. Gravity was sufficient for extension of the main gear in an emergency.

The main landing gear retracted inward. On extension, the main landing gear wheel fairing doors closed after the gear was down and locked. The nose landing gear retracted rearward and pivoted 90° so that the nose wheel fitted horizontally into the wheel well. The complete extension of the landing gear, including closing of the wheel well doors, took approximately eight seconds. Landing gear retraction took approximately the same amount of time.

The nose wheel steering was hydraulically powered and when not engaged, the steering unit functioned as a shimmy damper.

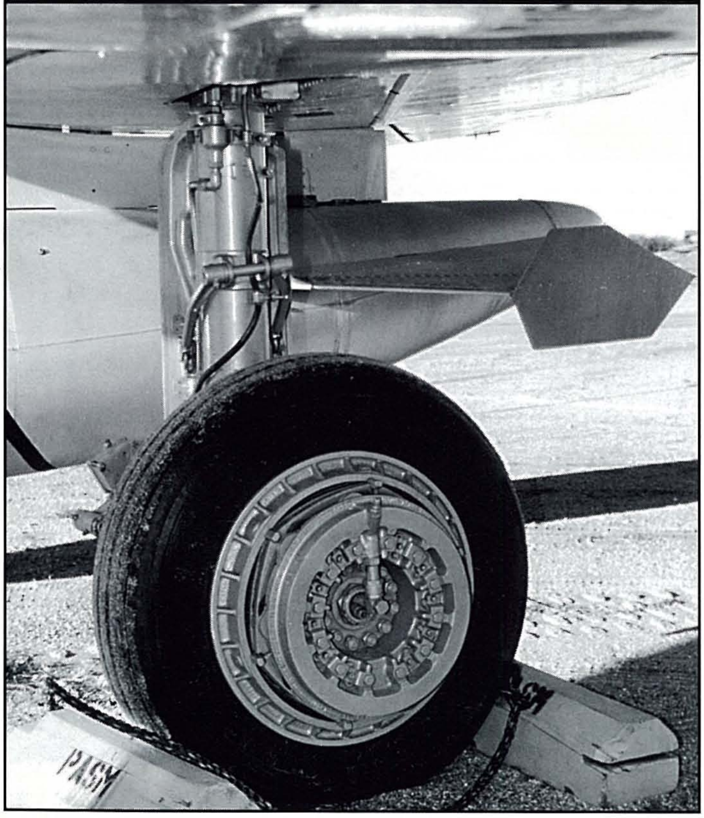
F-86H LANDING GEAR SYSTEMS


F-86H-1 AIRPLANES NOT MODIFIED BY T.O.
GUN HEATER
OFF
HORN CUTOUT
CANOPY
OPEN
UNLOCKED
OFF
CLOSE
EMER. UP
UP
LANDING & TAXI LTS. RETRACT
EXTEND & ON
DOWN
LANDING GEAR
LDG GR POSITION
FLIGHT CONTROL EMERGENCY CHANGE OVER
F-86H-5 AND SUBSEQUENT AIRPLANES AND F-86H-1 AIRPLANES MODIFIED BY T.O.
GUN HEATER
HORN CUTOUT
EMER UP
CANOPY OPEN UNLOCKED
OFF
CLOSE
LANDING & TAXI LTS RETRACTS
UP
OFF
EXTEND & ON
DOWN LANDING GEAR
N
L
R
LDG GR POSITION
FLIGHT CONTROL EMERGENCY CHANGE OVER

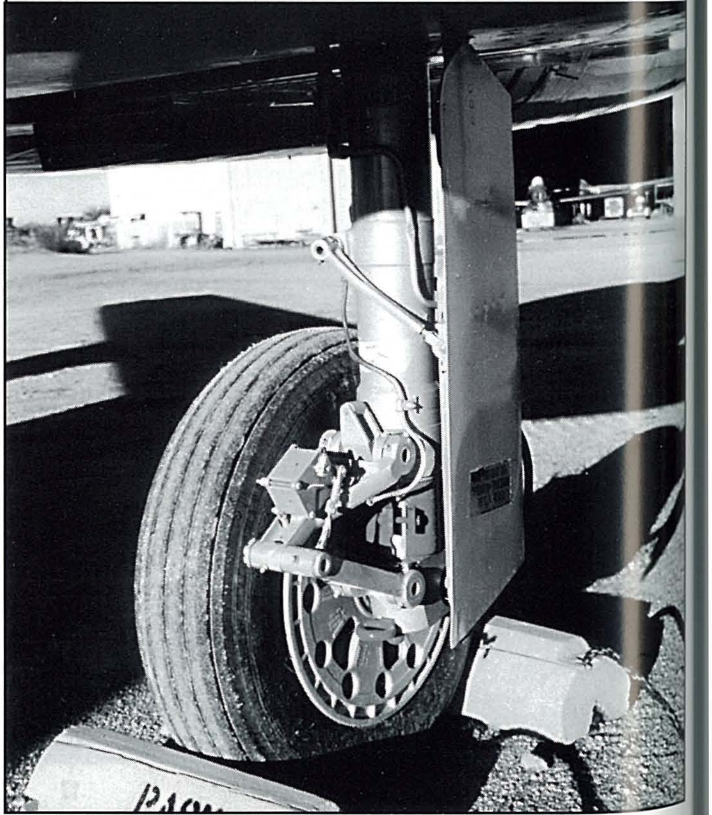
NOTE
Gun heater switch is not installed on F-86H-5 and subsequent airplanes.

LEFT FORWARD SWITCH PANEL

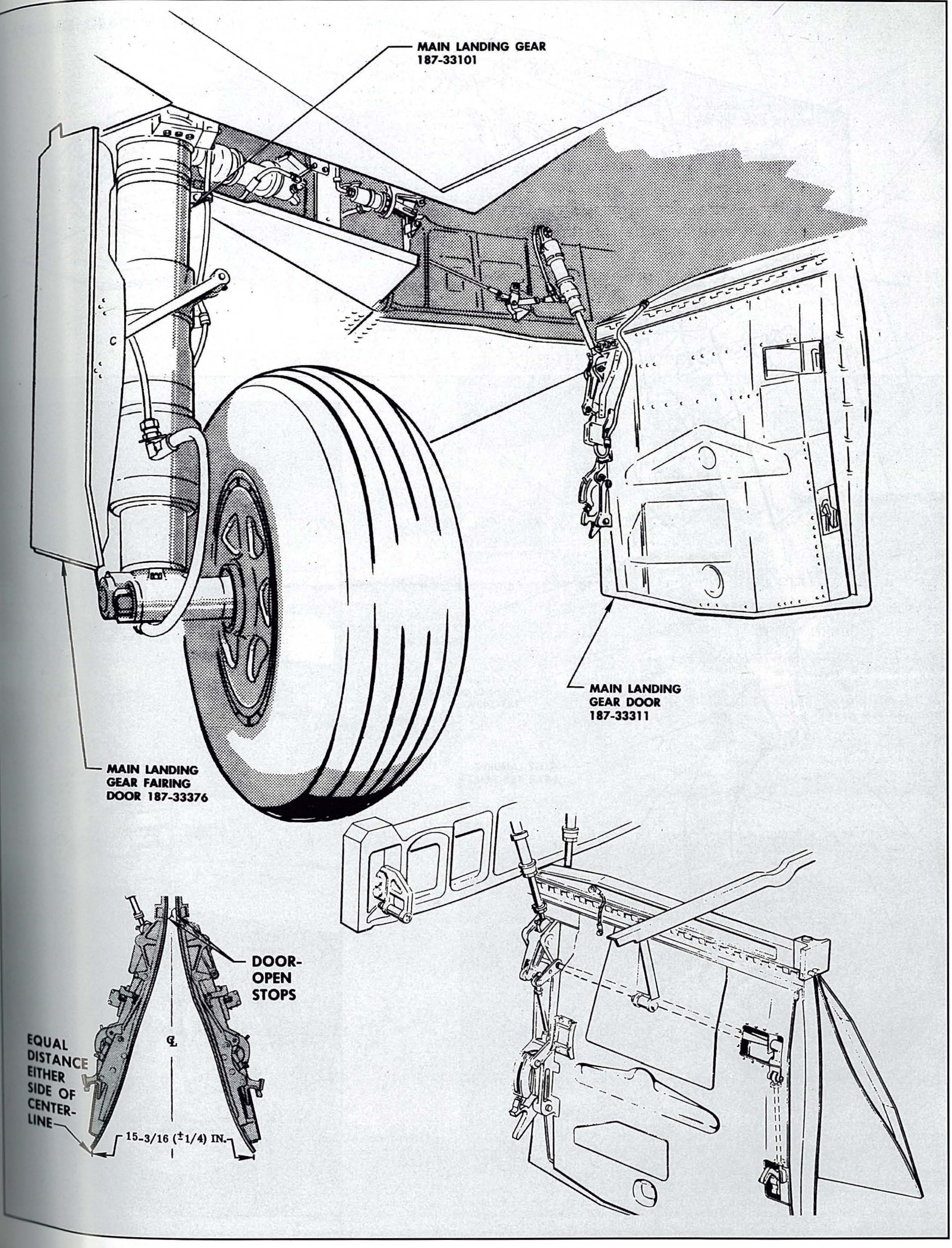
RIGHT - HAND MAIN LANDING GEAR



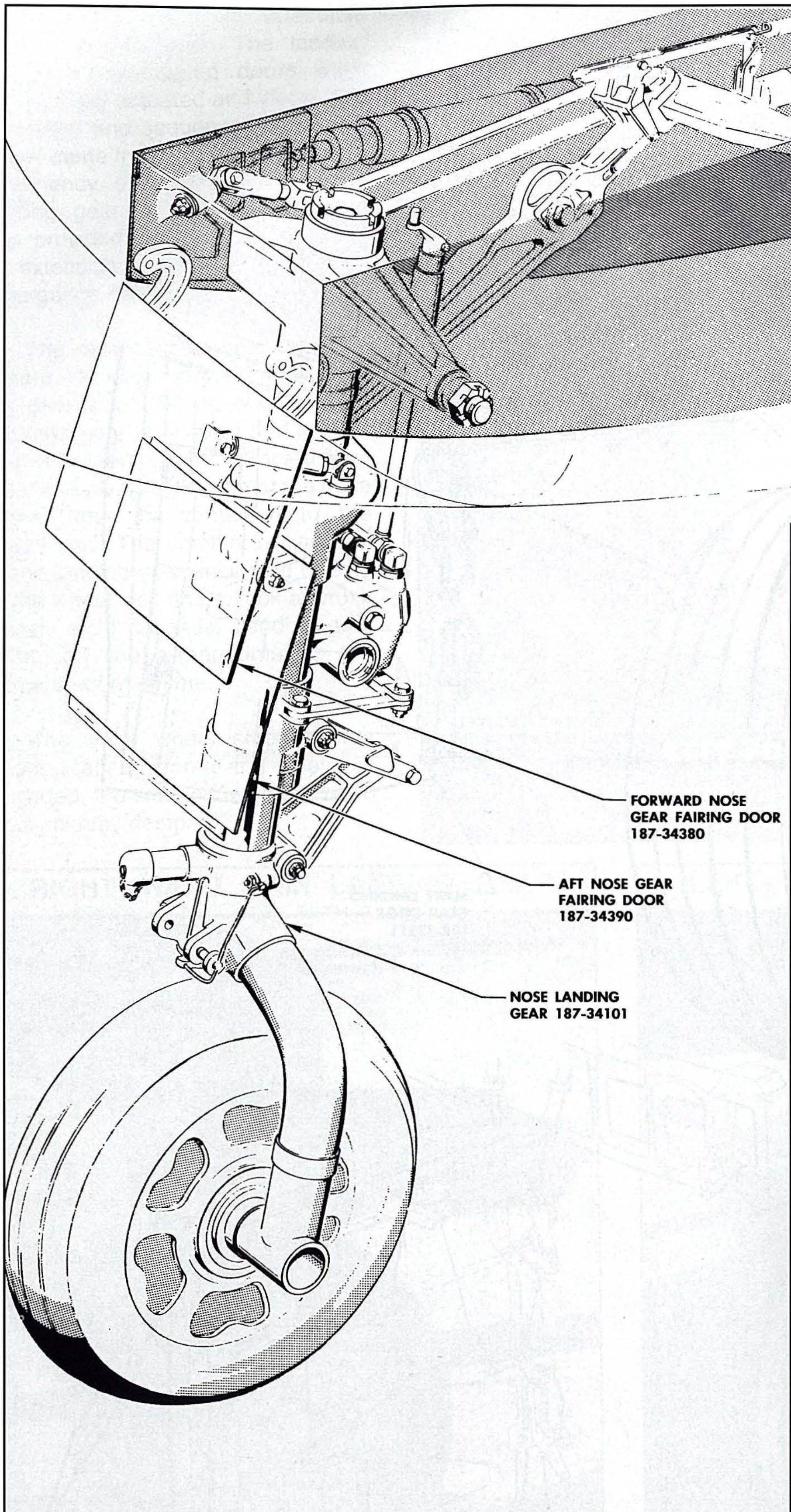
LEFT - HAND MAIN LANDING GEAR

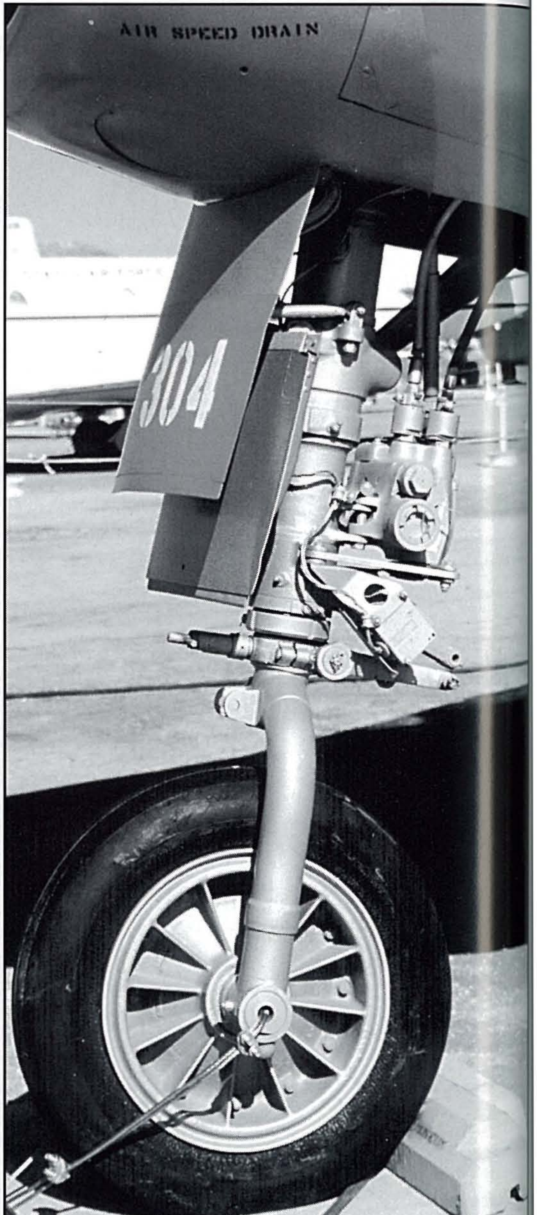


F-86H MAIN LANDING GEAR AND GEAR DOORS

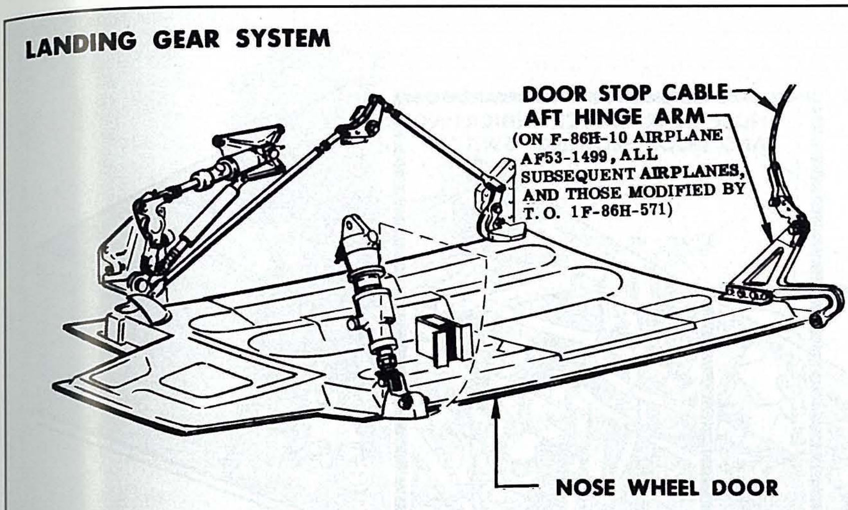


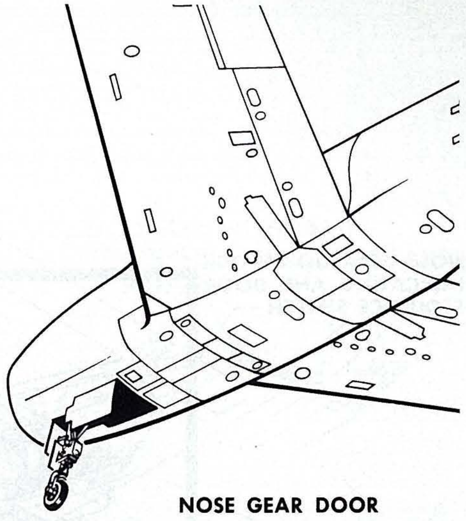
F-86H NOSE LANDING GEAR AND GEAR DOORS

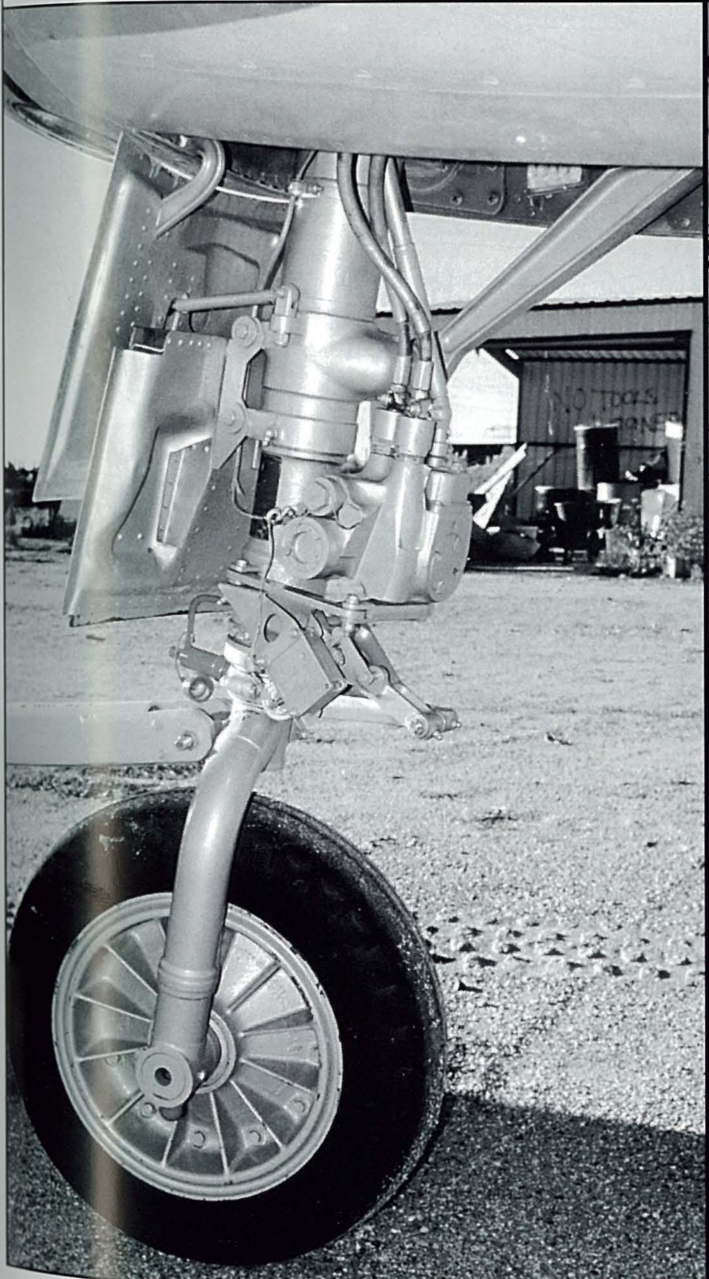

FORWARD NOSE GEAR FAIRING DOOR 187-34380
AFT NOSE GEAR FAIRING DOOR 187-34390
NOSE LANDING GEAR 187-34101

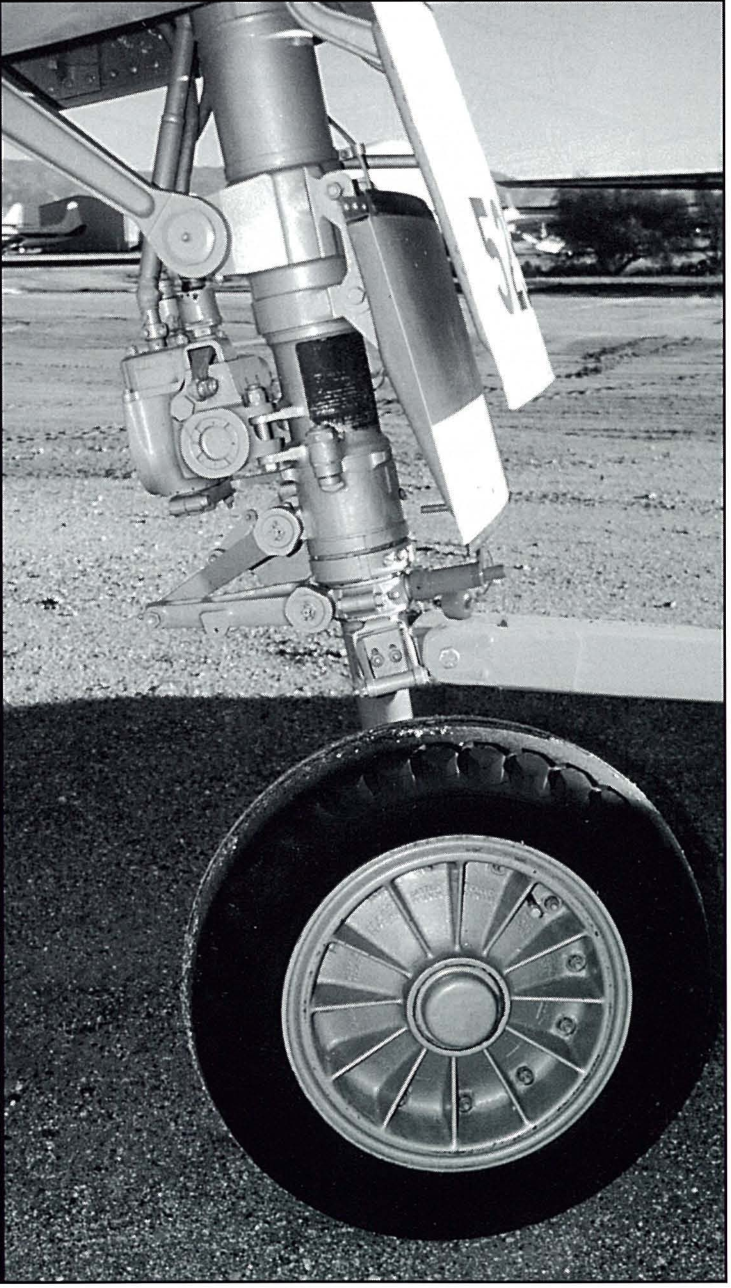


F-86H NOSE LANDING GEAR AND GEAR DOORS

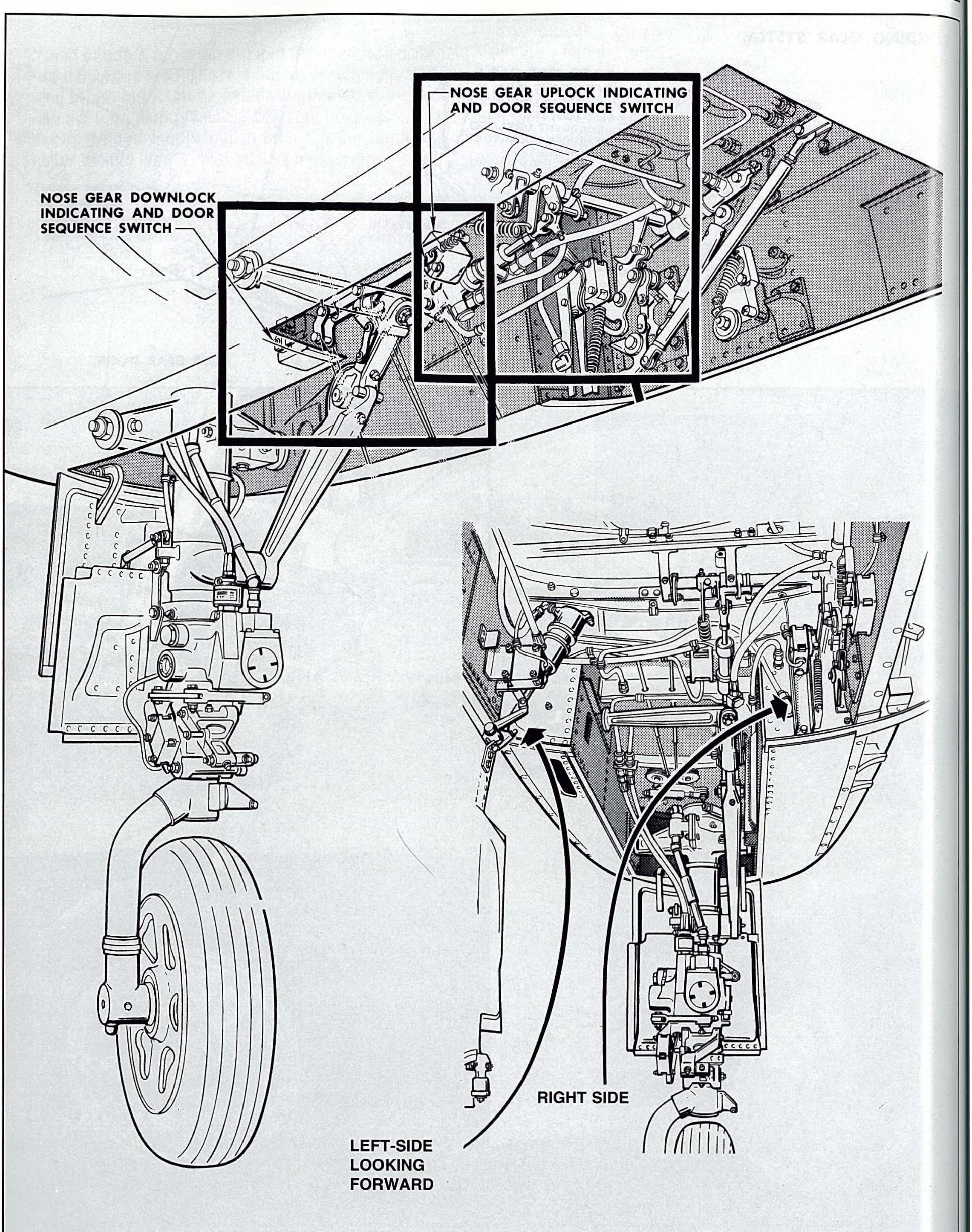

LANDING GEAR SYSTEM
DOOR STOP CABLE
AFT HINGE ARM
(ON F-86H-10 AIRPLANE AF53-1499, ALL SUBSEQUENT AIRPLANES, AND THOSE MODIFIED BY T.O. 1F-86H-571)
NOSE WHEEL DOOR



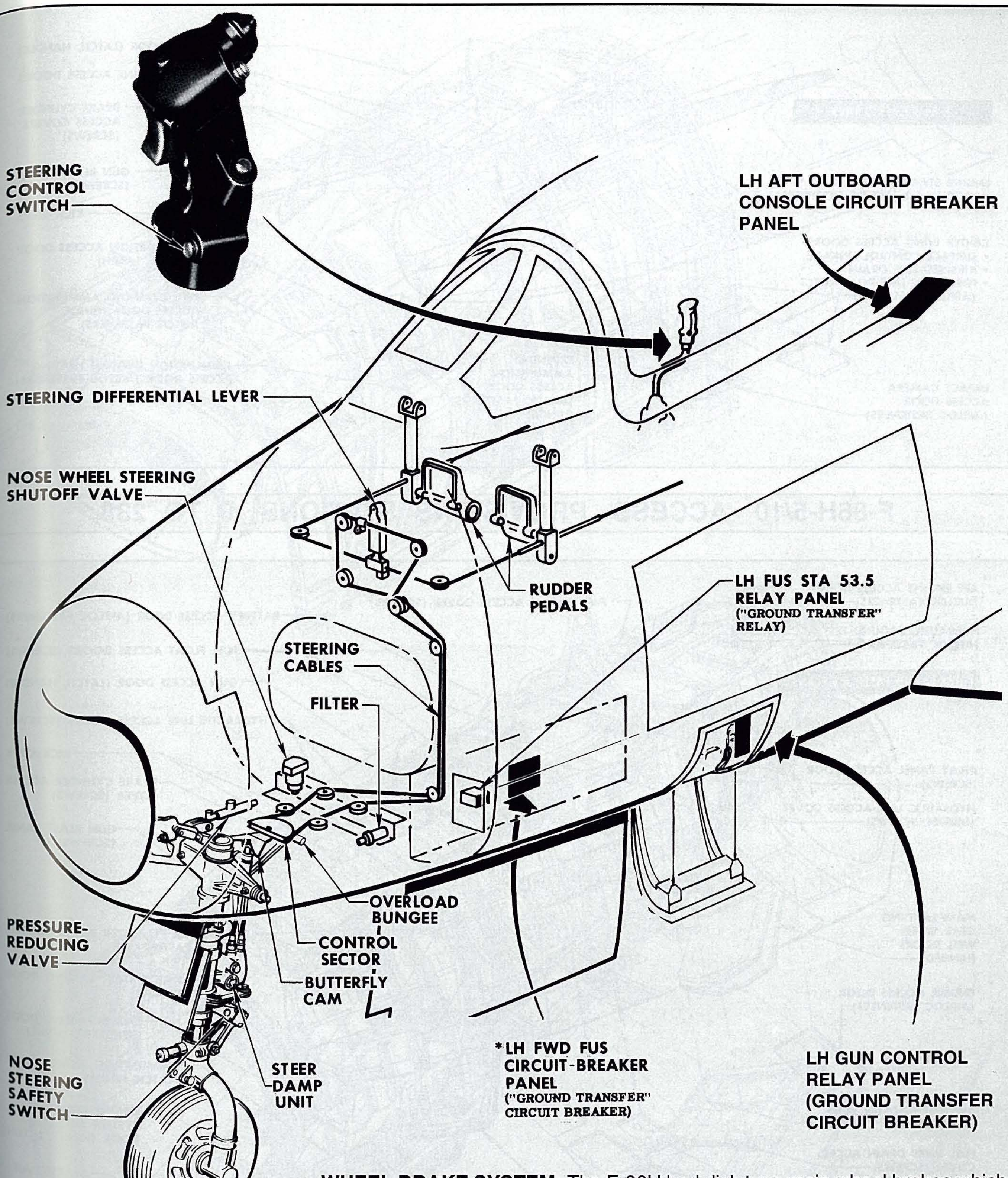




F-86H NOSE LANDING GEAR AND GEAR DOORS


NOSE GEAR UPLOCK INDICATING AND DOOR SEQUENCE SWITCH
NOSE GEAR DOWNLOCK INDICATING AND DOOR SEQUENCE SWITCH
RIGHT SIDE
LEFT-SIDE LOOKING FORWARD

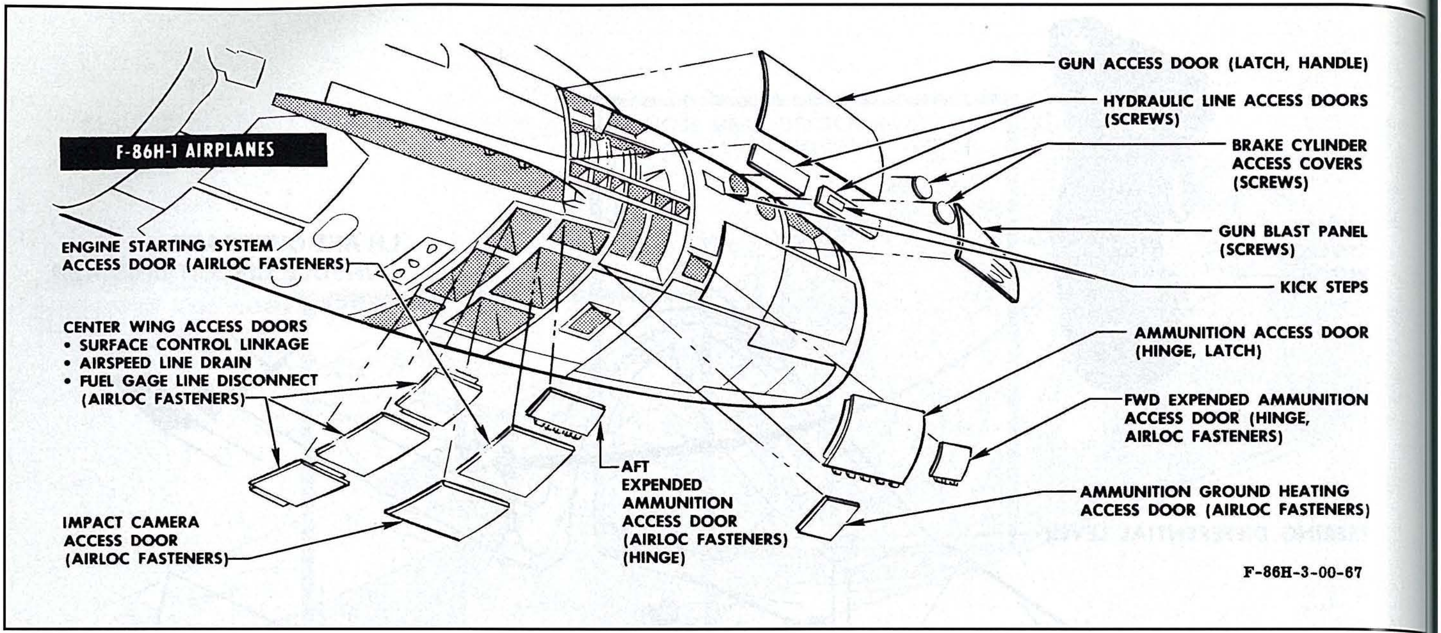
F-86H NOSE GEAR STEERING SYSTEM


STEERING CONTROL SWITCH
LH AFT OUTBOARD CONSOLE CIRCUIT BREAKER PANEL
STEERING DIFFERENTIAL LEVER
NOSE WHEEL STEERING SHUTOFF VALVE
RUDDER PEDALS
LH FUS STA 53.5 RELAY PANEL ("GROUND TRANSFER" RELAY)
STEERING CABLES
FILTER
OVERLOAD BUNGEE
CONTROL SECTOR
BUTTERFLY CAM
PRESSURE-REDUCING VALVE
STEER DAMP UNIT
NOSE STEERING SAFETY SWITCH
*LH FWD FUS CIRCUIT-BREAKER PANEL ("GROUND TRANSFER" CIRCUIT BREAKER)
LH GUN CONTROL RELAY PANEL (GROUND TRANSFER CIRCUIT BREAKER)

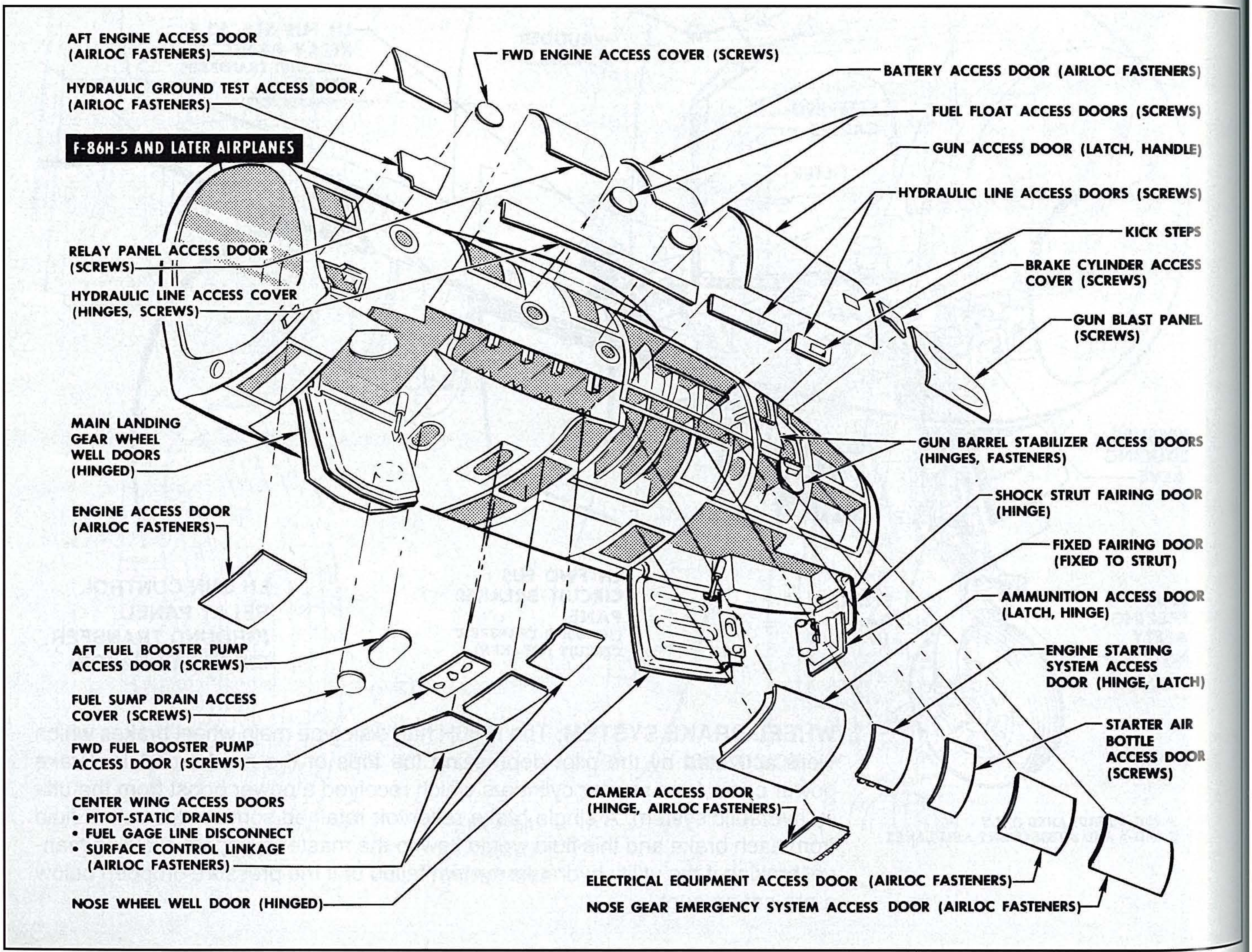
* F-86H-1 AIRPLANES ONLY
† F-86H-5 AND SUBSEQUENT AIRPLANES

WHEEL BRAKE SYSTEM: The F-86H had disk type main wheel brakes which were activated by the pilot depressing the tops of the rudder pedals. Brake power came from master cylinders which received a power boost from the utility hydraulic system. A single brake reservoir retained some of the return fluid from each brake and this fluid would flow to the master cylinders allowing manual braking if the utility hydraulic system failed or if the pressure dropped below a pre-set amount.

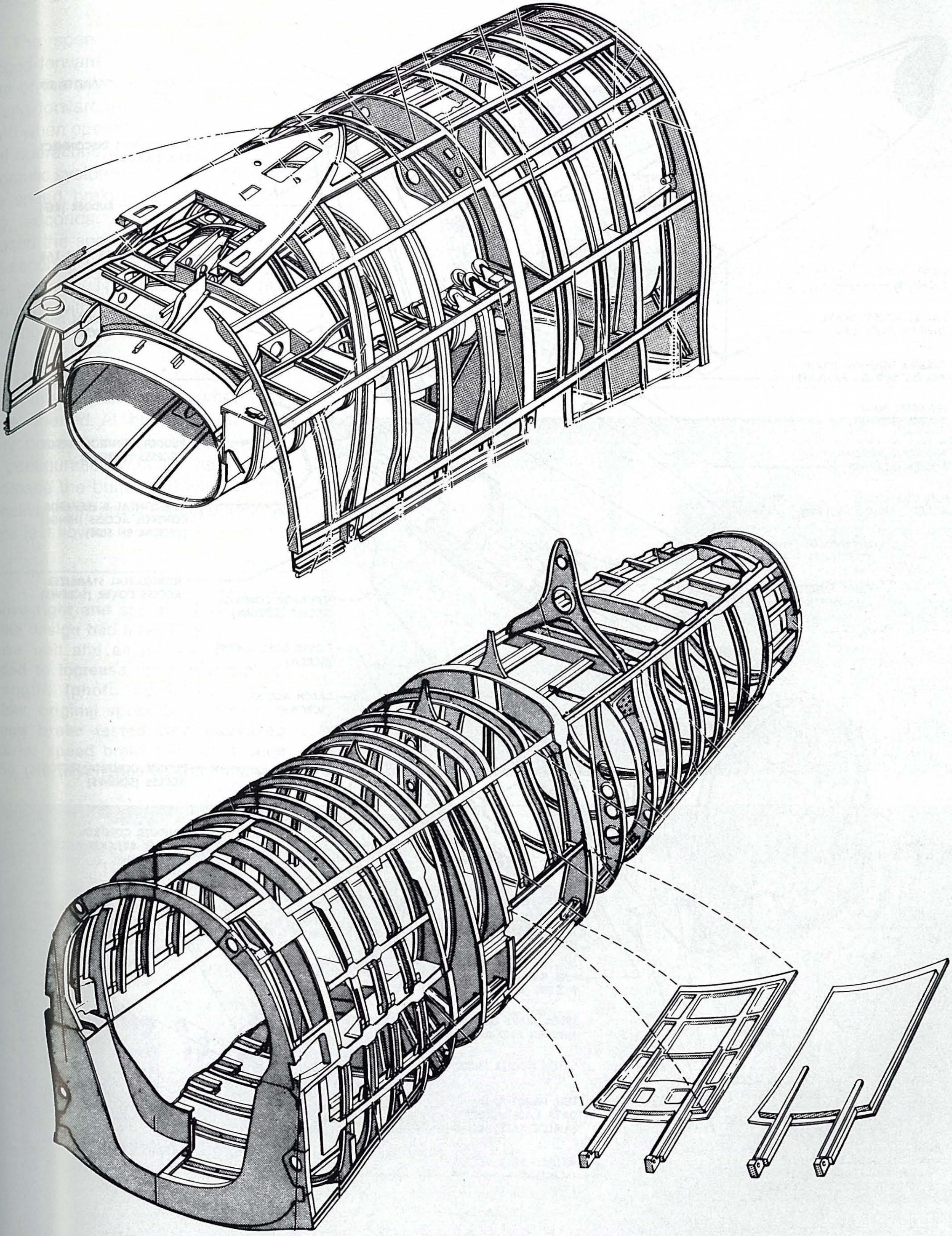
F-86H-1 ACCESS PROVISIONS STATIONS 0 TO 238


F-86H-1 AIRPLANES
GUN ACCESS DOOR (LATCH, HANDLE)
HYDRAULIC LINE ACCESS DOORS (SCREWS)
BRAKE CYLINDER ACCESS COVERS (SCREWS)
GUN BLAST PANEL (SCREWS)
KICK STEPS
ENGINE STARTING SYSTEM ACCESS DOOR (AIRLOC FASTENERS)
CENTER WING ACCESS DOORS
• SURFACE CONTROL LINKAGE
• AIRSPEED LINE DRAIN
• FUEL GAGE LINE DISCONNECT
(AIRLOC FASTENERS)
AMMUNITION ACCESS DOOR (HINGE, LATCH)
FWD EXPENDED AMMUNITION ACCESS DOOR (HINGE, AIRLOC FASTENERS)
AFT EXPENDED AMMUNITION ACCESS DOOR (AIRLOC FASTENERS) (HINGE)
AMMUNITION GROUND HEATING ACCESS DOOR (AIRLOC FASTENERS)
IMPACT CAMERA ACCESS DOOR (AIRLOC FASTENERS)
F-86H-3-00-67

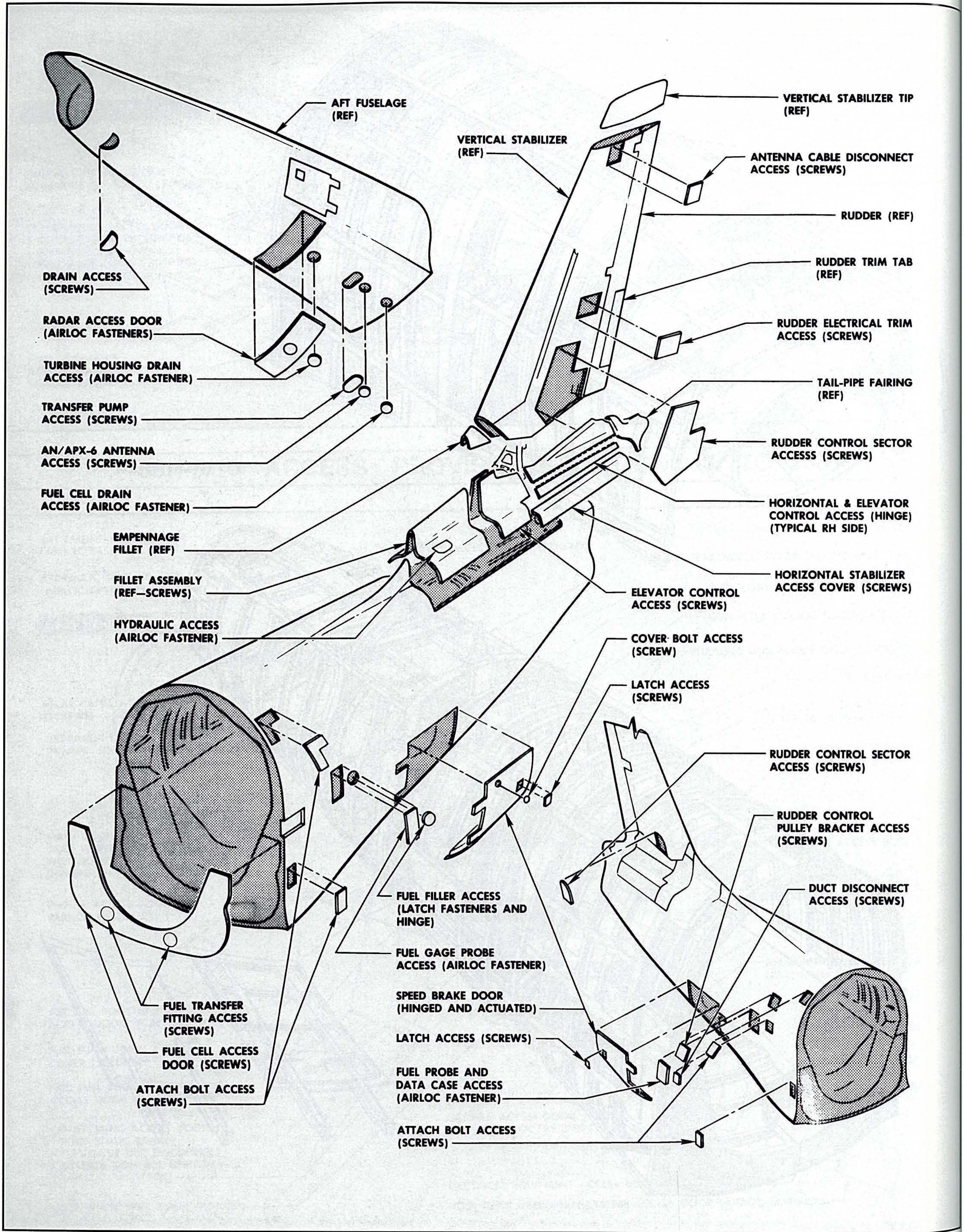
F-86H-5/10 ACCESS PROVISIONS STATIONS 0 TO 238


AFT ENGINE ACCESS DOOR (AIRLOC FASTENERS)
FWD ENGINE ACCESS COVER (SCREWS)
HYDRAULIC GROUND TEST ACCESS DOOR (AIRLOC FASTENERS)
F-86H-5 AND LATER AIRPLANES
BATTERY ACCESS DOOR (AIRLOC FASTENERS)
FUEL FLOAT ACCESS DOORS (SCREWS)
GUN ACCESS DOOR (LATCH, HANDLE)
HYDRAULIC LINE ACCESS DOORS (SCREWS)
KICK STEPS
BRAKE CYLINDER ACCESS COVER (SCREWS)
GUN BLAST PANEL (SCREWS)
RELAY PANEL ACCESS DOOR (SCREWS)
HYDRAULIC LINE ACCESS COVER (HINGES, SCREWS)
MAIN LANDING GEAR WHEEL WELL DOORS (HINGED)
GUN BARREL STABILIZER ACCESS DOORS (HINGES, FASTENERS)
SHOCK STRUT FAIRING DOOR (HINGE)
ENGINE ACCESS DOOR (AIRLOC FASTENERS)
FIXED FAIRING DOOR (FIXED TO STRUT)
AMMUNITION ACCESS DOOR (LATCH, HINGE)
AFT FUEL BOOSTER PUMP ACCESS DOOR (SCREWS)
ENGINE STARTING SYSTEM ACCESS DOOR (HINGE, LATCH)
FUEL SUMP DRAIN ACCESS COVER (SCREWS)
STARTER AIR BOTTLE ACCESS DOOR (SCREWS)
FWD FUEL BOOSTER PUMP ACCESS DOOR (SCREWS)
CAMERA ACCESS DOOR (HINGE, AIRLOC FASTENERS)
CENTER WING ACCESS DOORS
• PITOT-STATIC DRAINS
• FUEL GAGE LINE DISCONNECT
• SURFACE CONTROL LINKAGE
(AIRLOC FASTENERS)
ELECTRICAL EQUIPMENT ACCESS DOOR (AIRLOC FASTENERS)
NOSE WHEEL WELL DOOR (HINGED)
NOSE GEAR EMERGENCY SYSTEM ACCESS DOOR (AIRLOC FASTENERS)

F-86H INTERMEDIATE AND AFT FUSELAGE SECTIONS



F-86H ACCESS PROVISIONS STATIONS 238 THROUGH 430

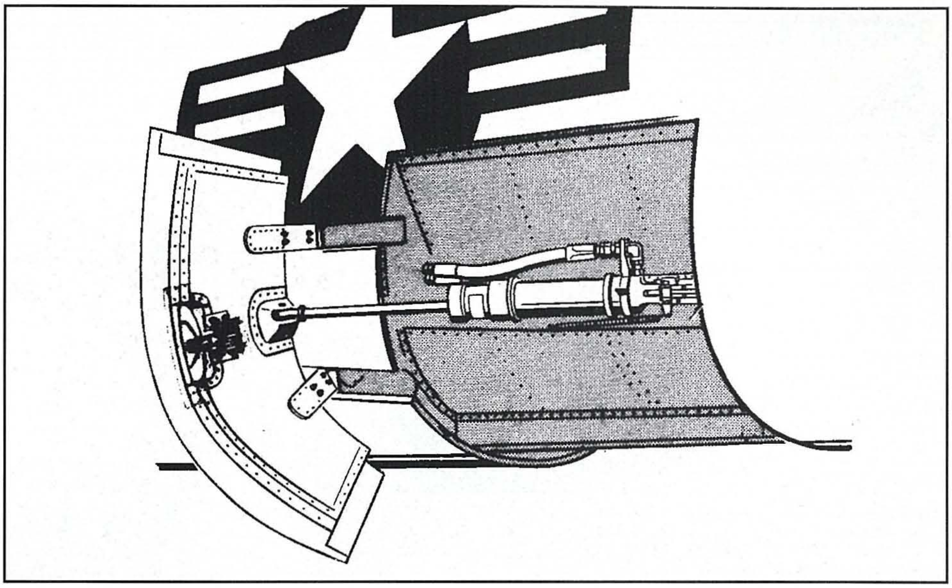

AFT FUSELAGE (REF)
DRAIN ACCESS (SCREWS)
RADAR ACCESS DOOR (AIRLOC FASTENERS)
TURBINE HOUSING DRAIN ACCESS (AIRLOC FASTENER)
TRANSFER PUMP ACCESS (SCREWS)
AN/APX-6 ANTENNA ACCESS (SCREWS)
FUEL CELL DRAIN ACCESS (AIRLOC FASTENER)
EMPENNAGE FILLET (REF)
FILLET ASSEMBLY (REF—SCREWS)
HYDRAULIC ACCESS (AIRLOC FASTENER)
VERTICAL STABILIZER (REF)
VERTICAL STABILIZER TIP (REF)
ANTENNA CABLE DISCONNECT ACCESS (SCREWS)
RUDDER (REF)
RUDDER TRIM TAB (REF)
RUDDER ELECTRICAL TRIM ACCESS (SCREWS)
TAIL-PIPE FAIRING (REF)
RUDDER CONTROL SECTOR ACCESSS (SCREWS)
HORIZONTAL & ELEVATOR CONTROL ACCESS (HINGE) (TYPICAL RH SIDE)
HORIZONTAL STABILIZER ACCESS COVER (SCREWS)
ELEVATOR CONTROL ACCESS (SCREWS)
COVER BOLT ACCESS (SCREW)
LATCH ACCESS (SCREWS)
RUDDER CONTROL SECTOR ACCESS (SCREWS)
RUDDER CONTROL PULLEY BRACKET ACCESS (SCREWS)
DUCT DISCONNECT ACCESS (SCREWS)
FUEL FILLER ACCESS (LATCH FASTENERS AND HINGE)
FUEL GAGE PROBE ACCESS (AIRLOC FASTENER)
SPEED BRAKE DOOR (HINGED AND ACTUATED)
LATCH ACCESS (SCREWS)
FUEL PROBE AND DATA CASE ACCESS (AIRLOC FASTENER)
ATTACH BOLT ACCESS (SCREWS)
FUEL TRANSFER FITTING ACCESS (SCREWS)
FUEL CELL ACCESS DOOR (SCREWS)
ATTACH BOLT ACCESS (SCREWS)

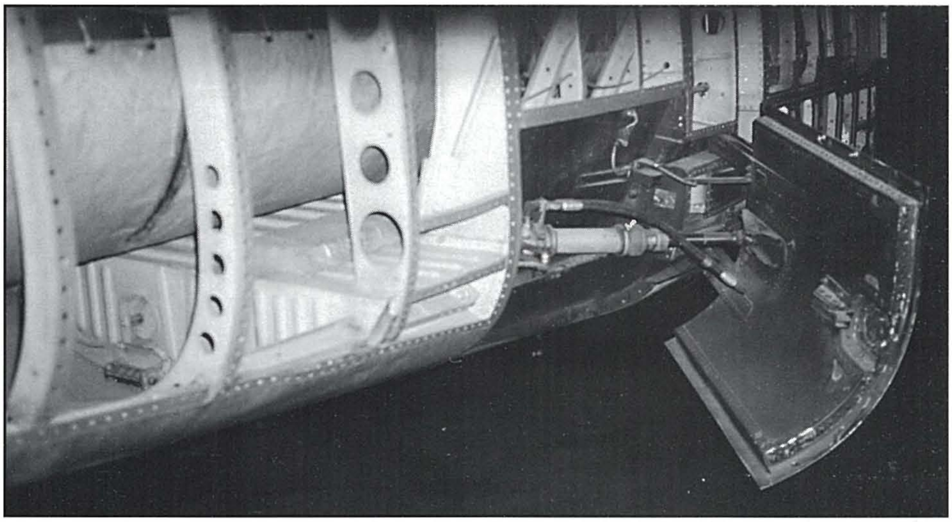
F-86H SPEED BRAKES

SPEED BRAKE SYSTEM:

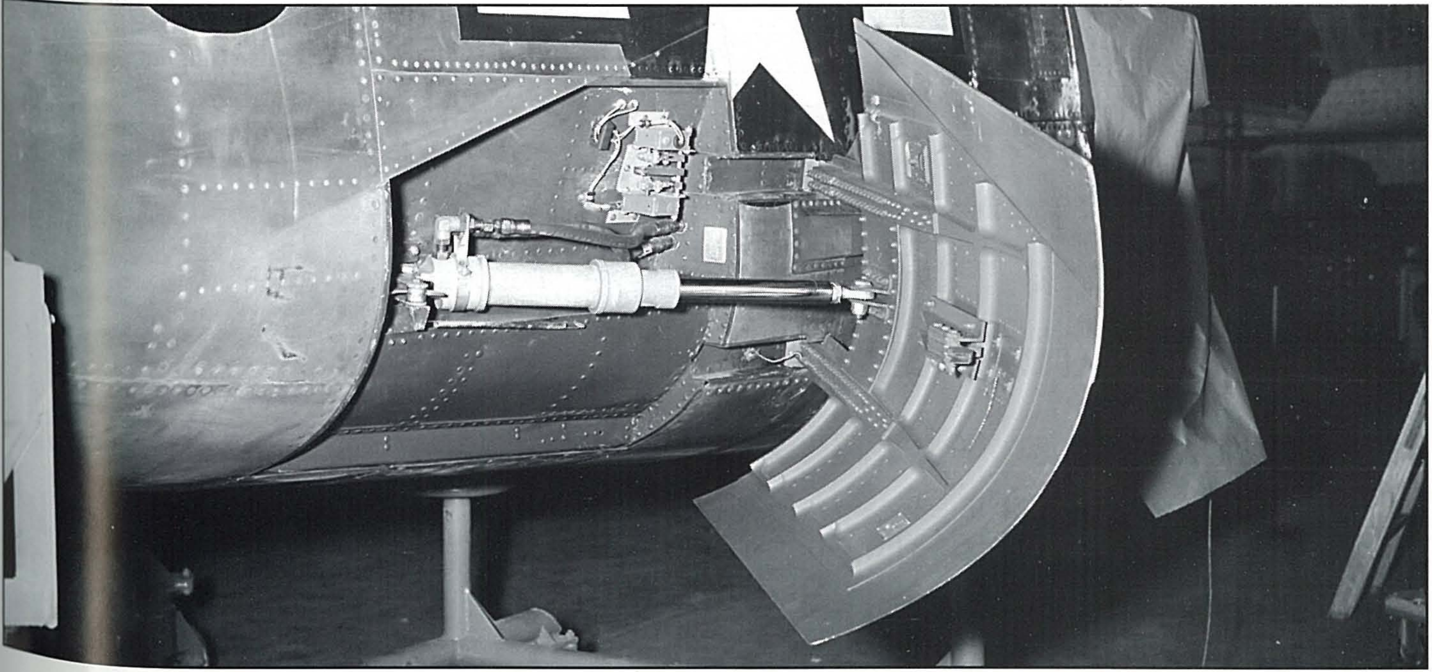
The speed brake panels were hinged forward and located on each side of the aft fuselage. The panels swung forward and extended downward when opened. Pressure for normal operations came from the utility hydraulic system. At high engine rpm, the speed brakes opened in about two seconds. High engine rpm caused the speed brakes to close in 4.5 seconds when the aircraft was on the ground. The cockpit was not equipped with a speed brake position indicator.

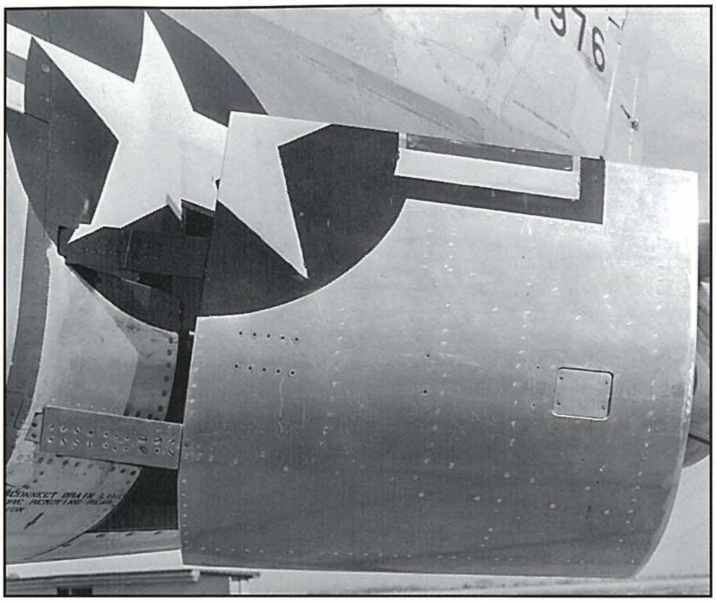
The original speed brakes created an unacceptable buffet when they were opened at high speeds, and were not effective at certain speeds or configurations. In an attempt to decrease the buffet and improve the effectiveness, several configurations were test flown.

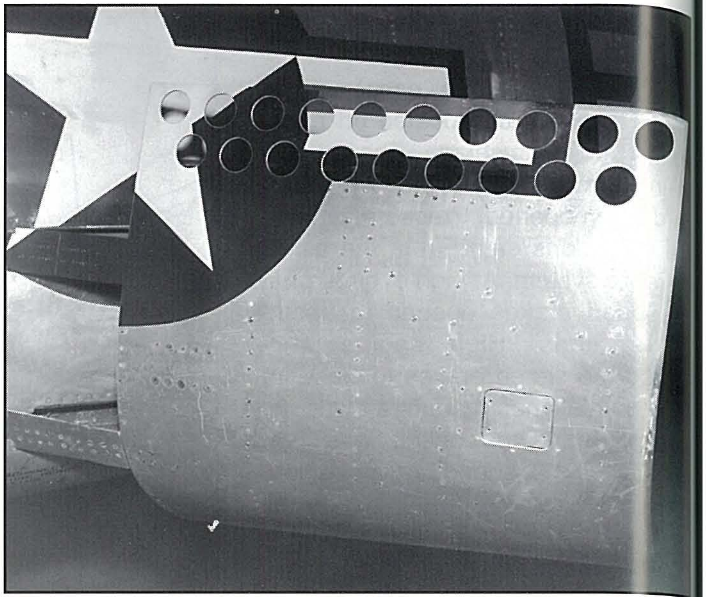


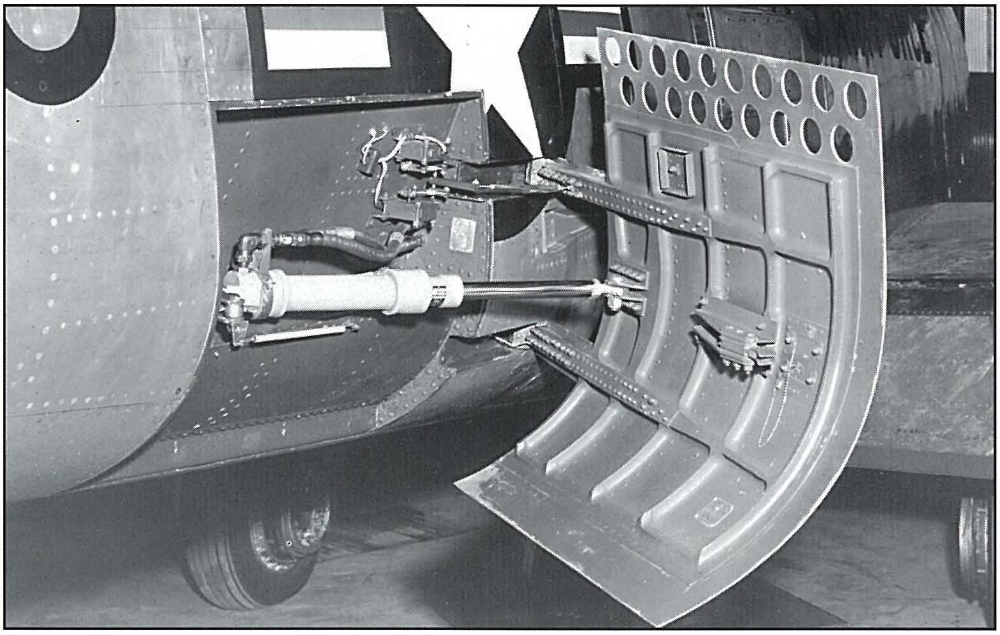


Above right and at right, final speed brake design had a rectangular speed brake well and an interior skin was added to increase the speed brakes' strength. (photo by Michael May) Below, original speed brake well and speed brake tested with increased exterior speed brake area on 1 June 1954. (North America via Bill Simone)



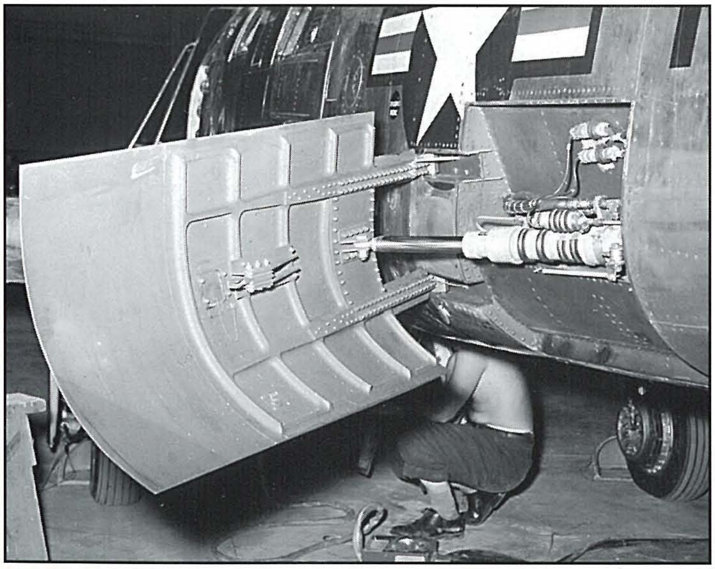


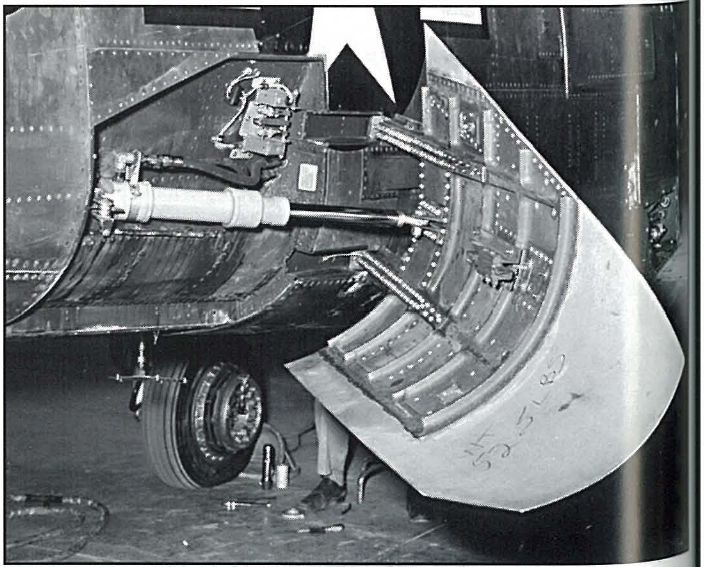




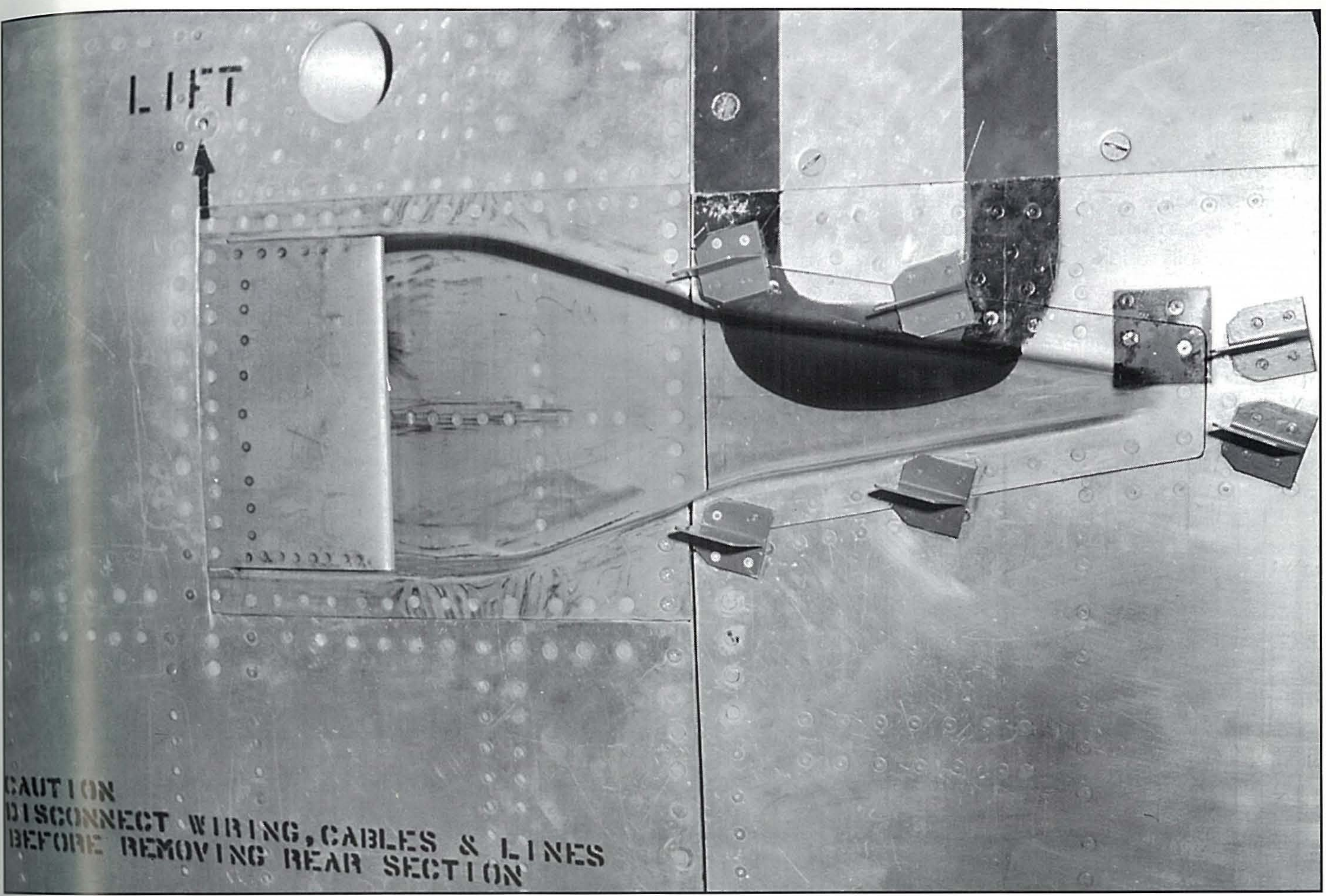
TEST MODIFICATIONS

Above left, large area speed brake as tested on 52-1978. Above, large area speed brake with perforations added. At left, large area perforated speed brake as tested on 52-1976 was fitted over finalized standard sized speed brake. Below left, Mod IX speed brake was tested on 52-1976 with additional trailing edge extension. It was also fitted over the finalized speed brake design. Below, the angled Mod X odd-shaped extended area speed brake being tested on 18 August 1954 was fitted over the early angled upper-edge speed brake on 52-1978. (North American via Bill Simone)

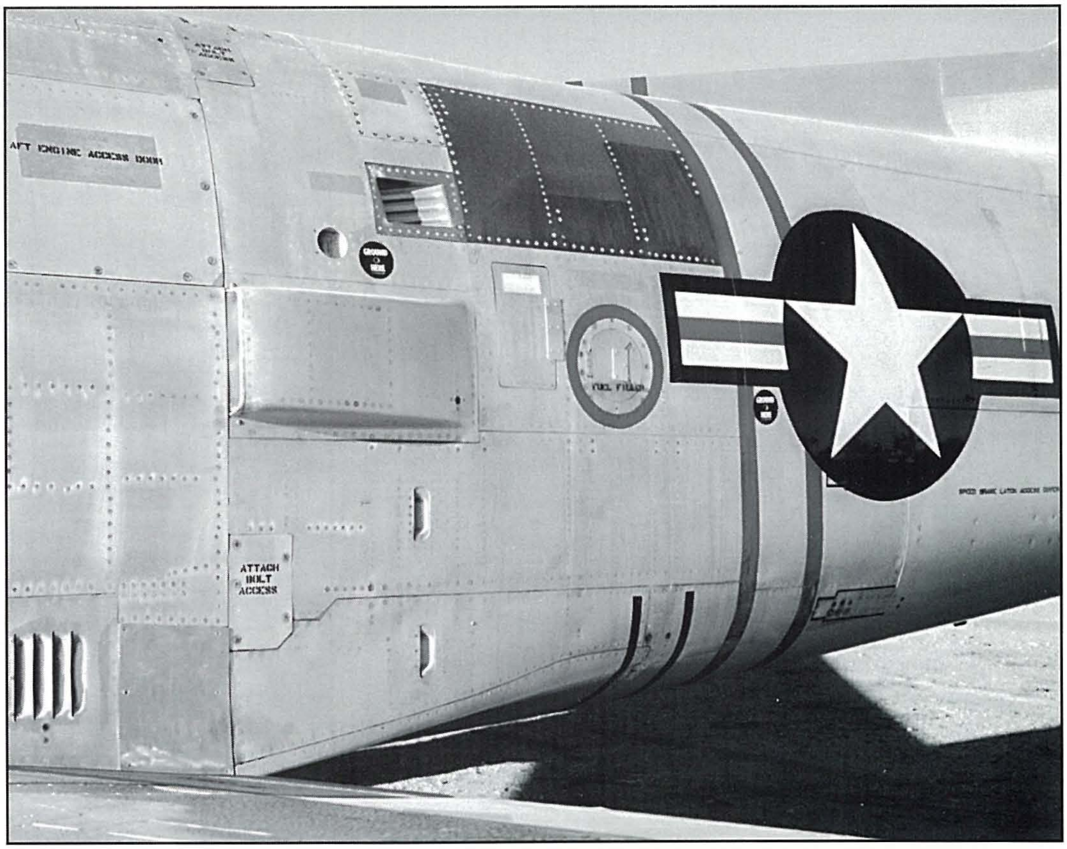




F-86H AFT FUSELAGE COOLING DUCT


LIFT
CAUTION
DISCONNECT WIRING, CABLES & LINES
BEFORE REMOVING REAR SECTION

Above, right-hand aft fuselage cooling duct on 52-1975 on 27 May 1953. The original cooling ducts were of the NACA style design and did not perform adequately. This photo documents the testing of vortex generators in an attempt to improve the duct's performance. (North Amer-ican via Bill Simone)



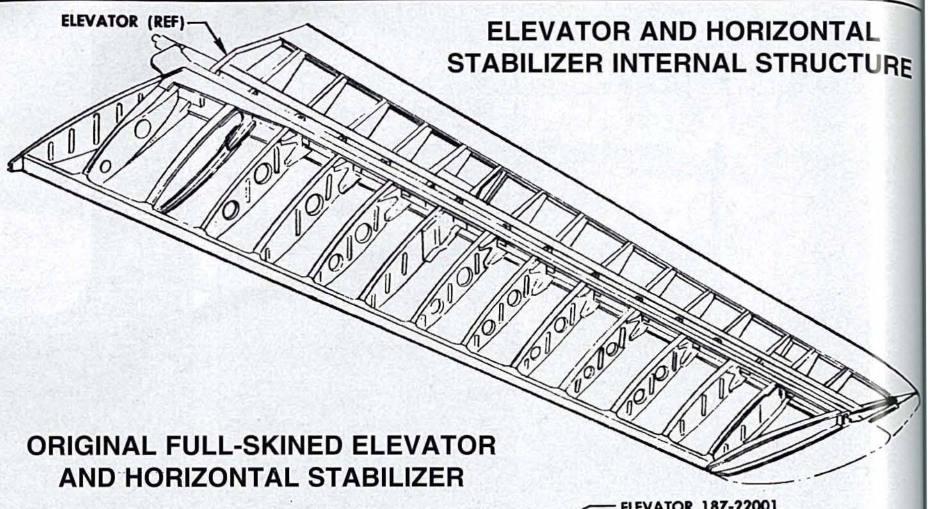
At right, left-hand view of the final design for the aft fuselage cooling duct was a conventional scoop. The two vertical fuselage stripes and the circle around the fuel filler cap were painted red. The two lower fuselage stripes were black. The small black circle above the cooling duct and forward of the national insignia say "ground here". The two left-hand aft fuselage attaching bolt access doors are marked "attached bolt access".

F-86H HORIZONTAL AND VERTICAL STABILIZER STRUCTURES

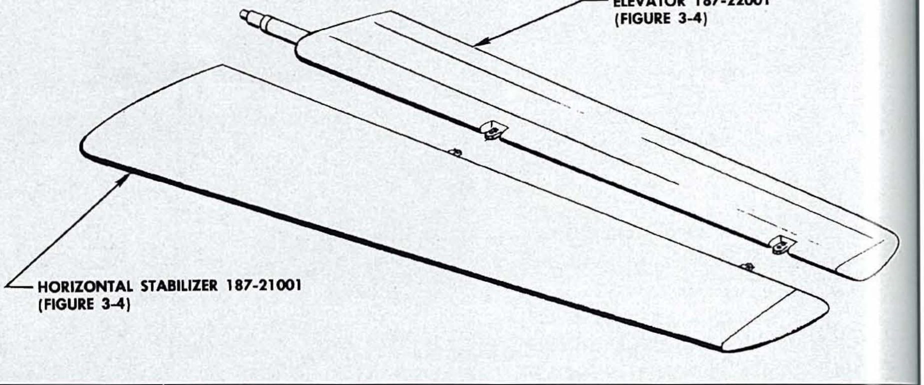
The F-86H suffered from vertical tail and rudder buffet. The buffet was very heavy and unacceptable. Early in the program the rudder suffered damage in flight. The final solution to this problem was to improve the airflow around the rudder and stiffen it up. This led to what North American called the split rudder.

Early in the flight test program the YF-86Hs had a flush rudder skin, while the production aircraft had an externally ribbed trailing edge. On the split rudder, the upper portion of the rudder had external ribs, while the lower trim tab had a flush skin.

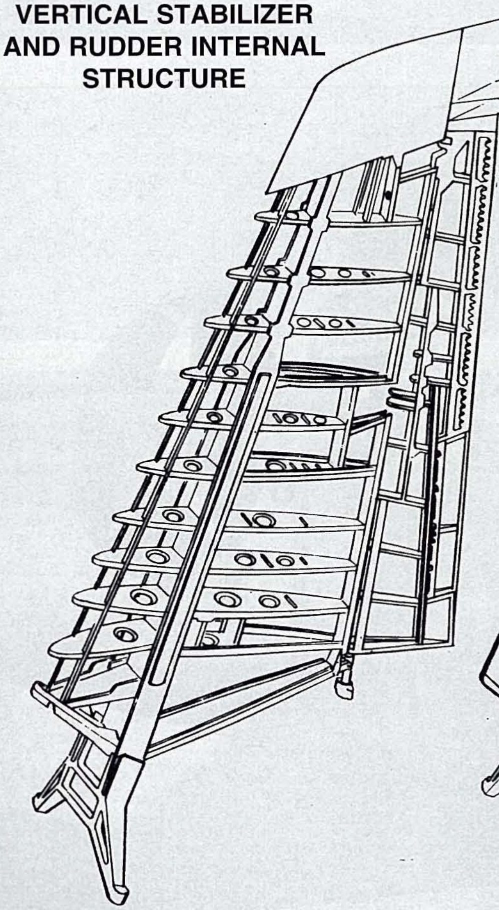
The split-type rudder and elevator prevented buzz associated with high Mach dives while providing better pitch control during high Mach pullout conditions and during low speed landling and nose wheel lift-off, with no occurrence of over-control or sensitivity.



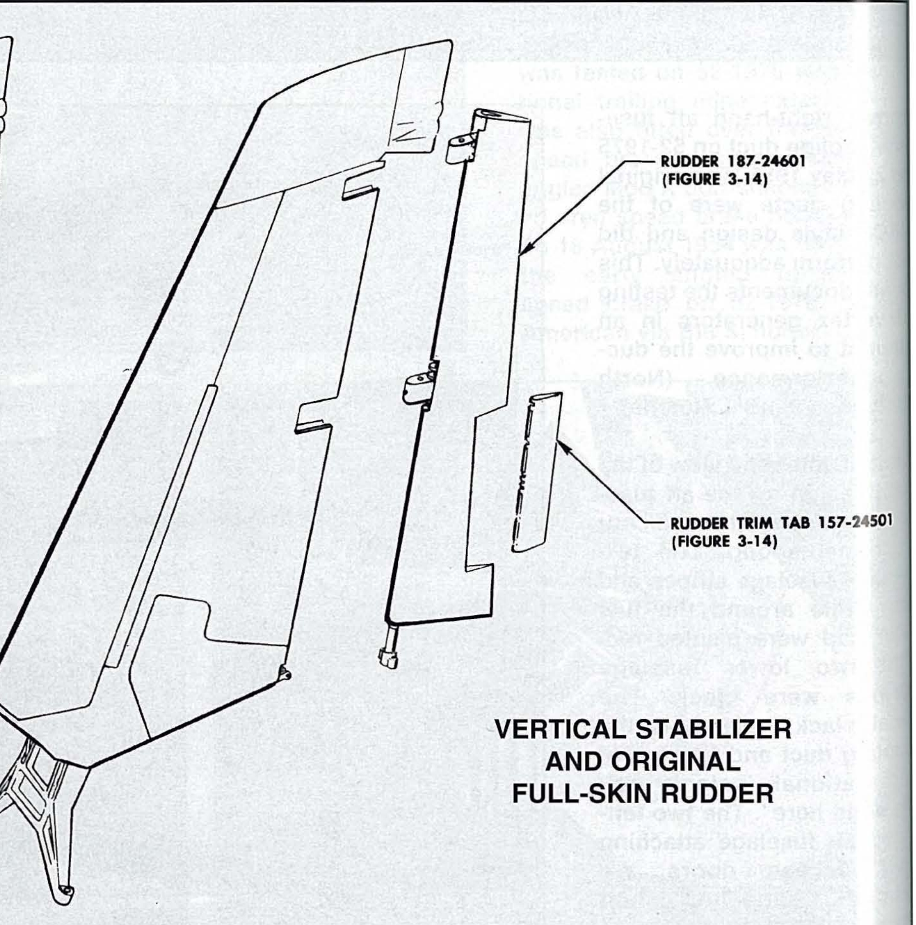
ELEVATOR AND HORIZONTAL STABILIZER INTERNAL STRUCTURE



ORIGINAL FULL-SKINED ELEVATOR AND HORIZONTAL STABILIZER

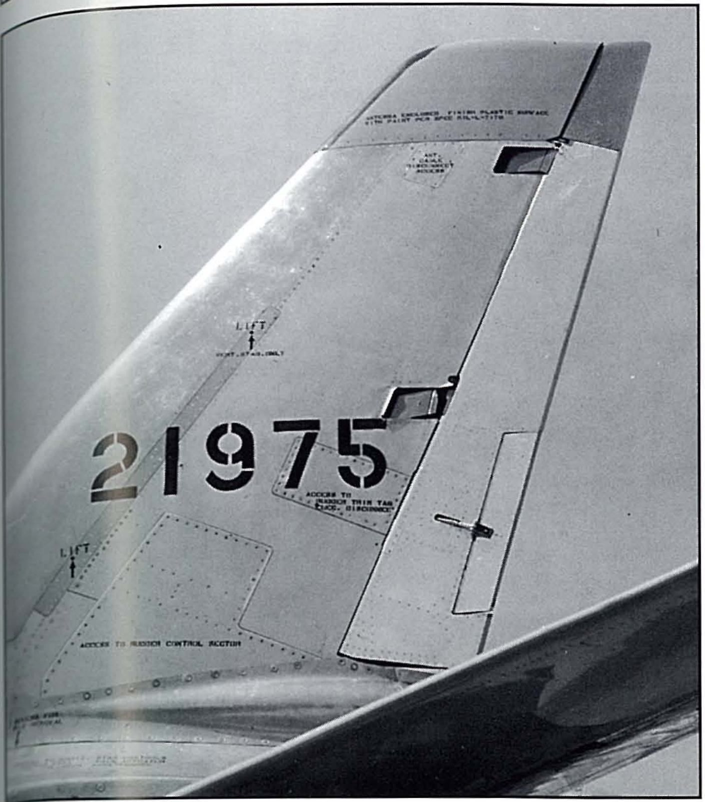


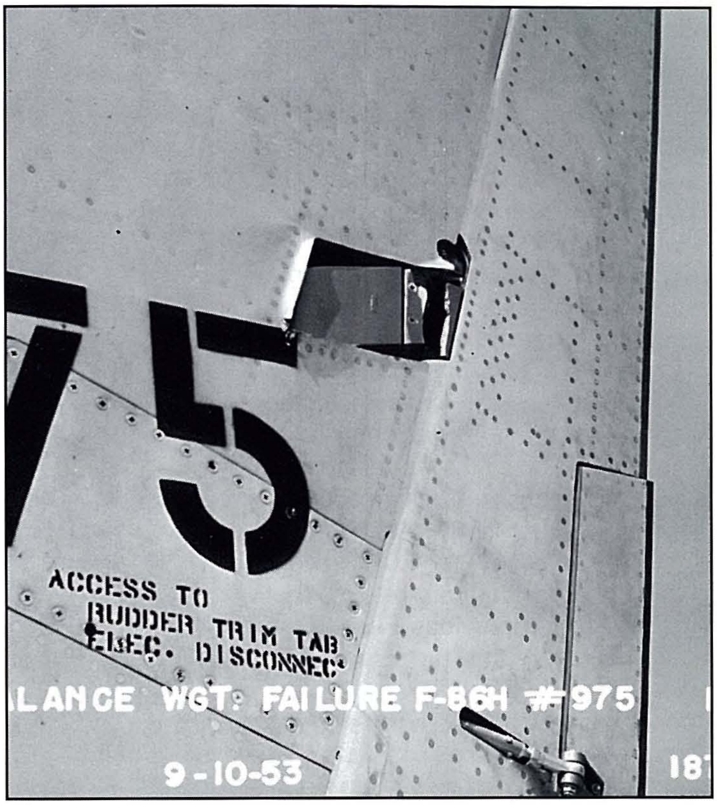
VERTICAL STABILIZER AND RUDDER INTERNAL STRUCTURE



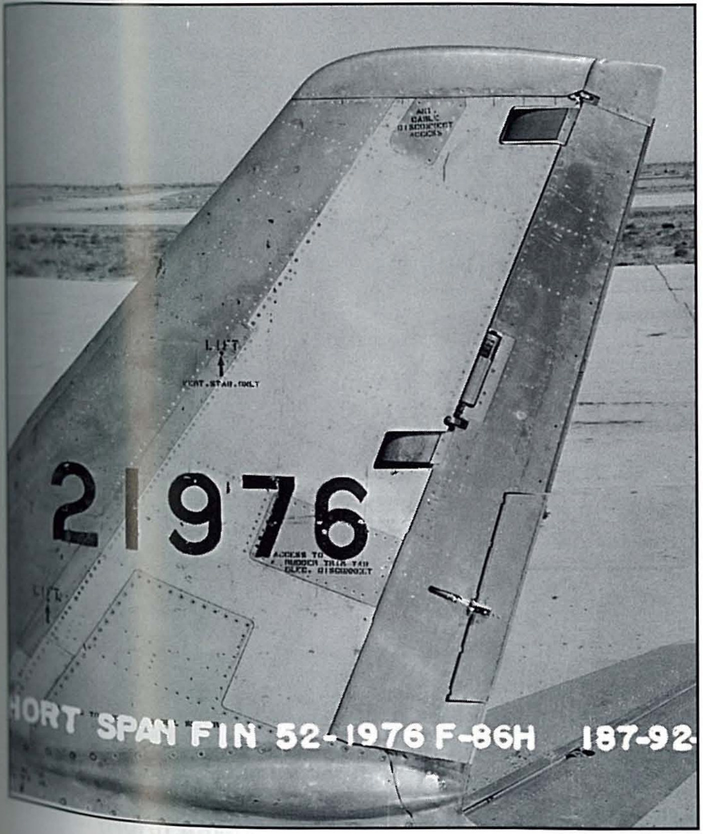
VERTICAL STABILIZER AND ORIGINAL FULL-SKIN RUDDER

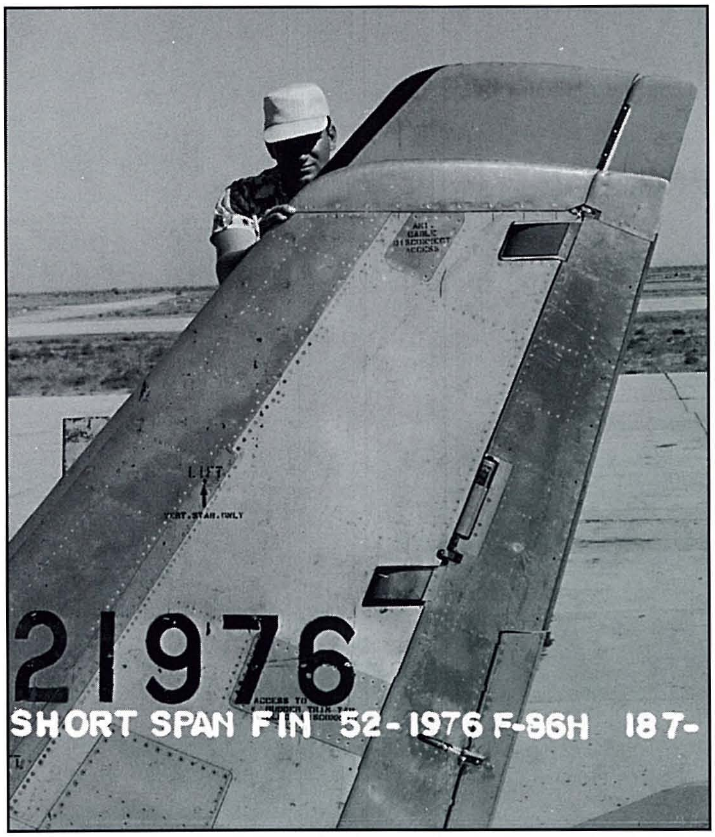
F-86H VERTICAL STABILIZER AND RUDDER DEVELOPMENT





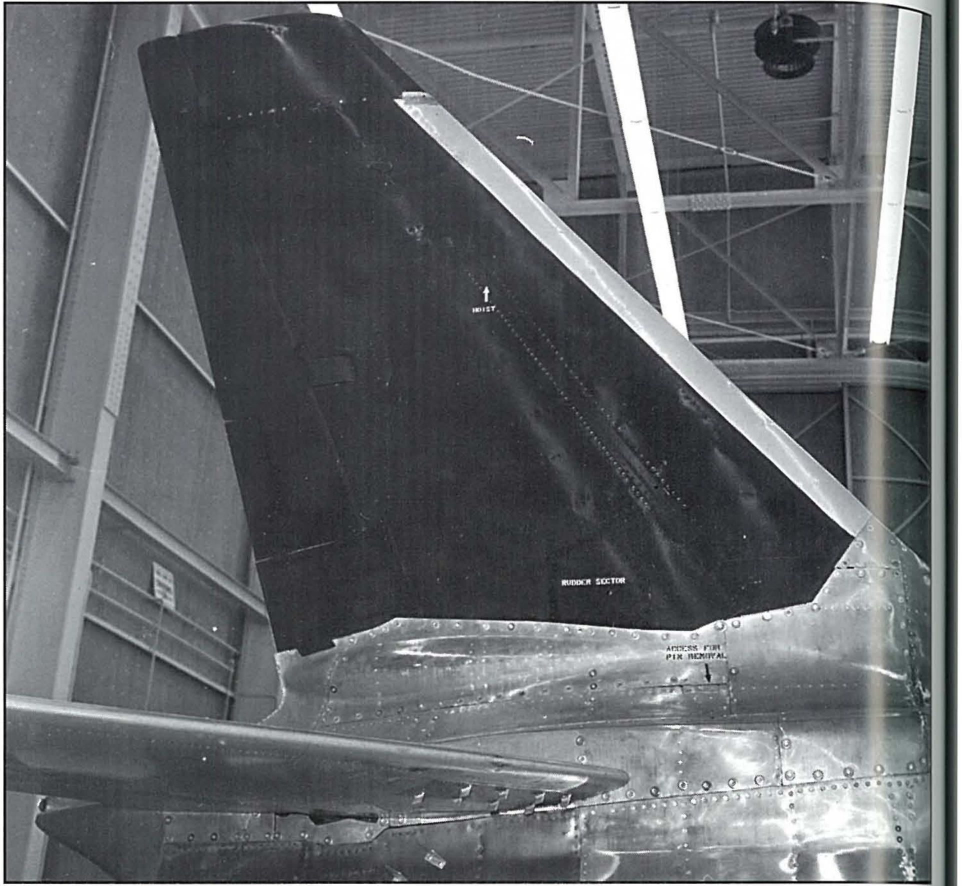
Above, 52-1975 with original full-skin rudder after flight 43 on 10 September 1953 with rudder balance weight failure caused by severe rudder buffet. Above right, close-up of lower balance weight failure. Below left, a short-span fin and rudder was fitted to 52-1976 in an attempt to correct the rudder buffet problem. One way to reduce buffet was to change the moment of inertia of the tail. To do this, NAA chose to reduce the span. The down side of this is the possible lack of stability. The short span vertical tail did not solve the problem. Below right, NAA employee holds up original fin tip for comparison. (via B. Simone)

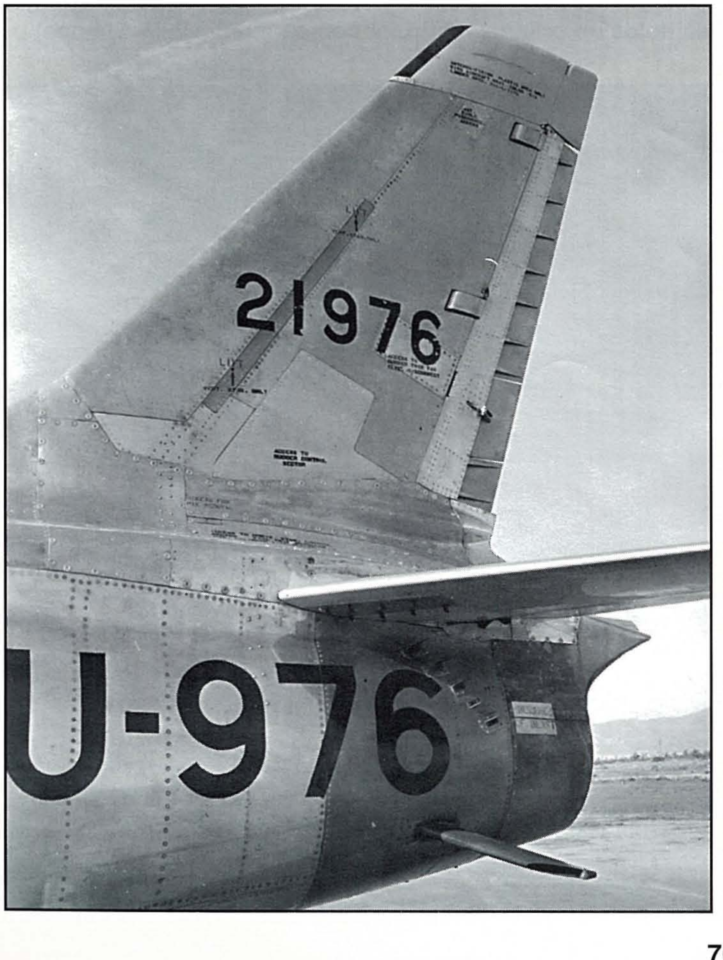


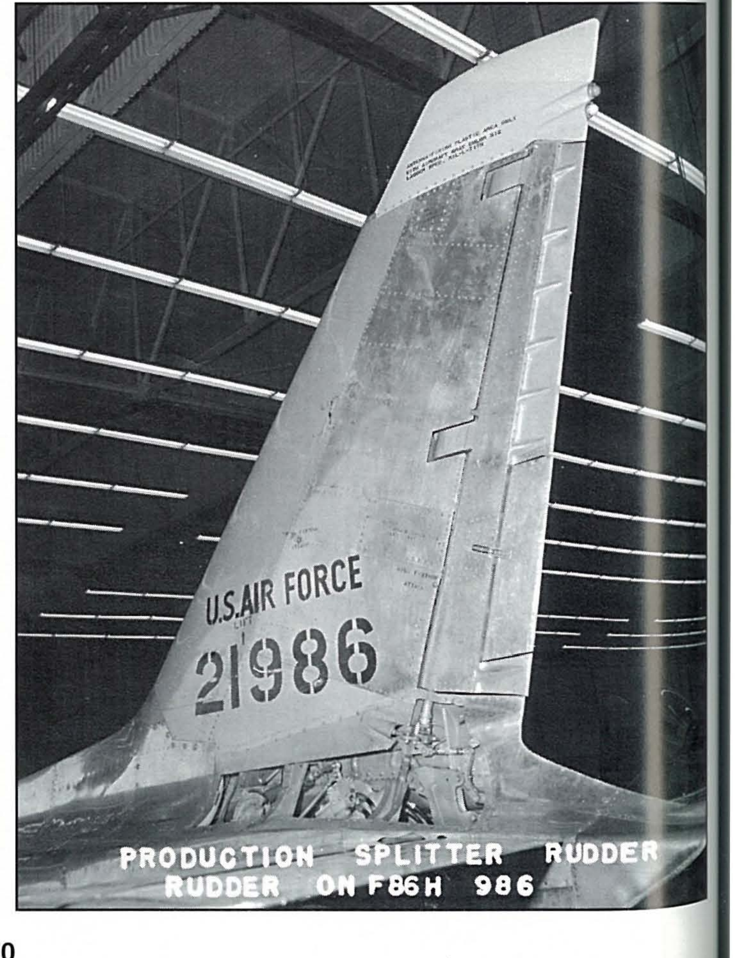


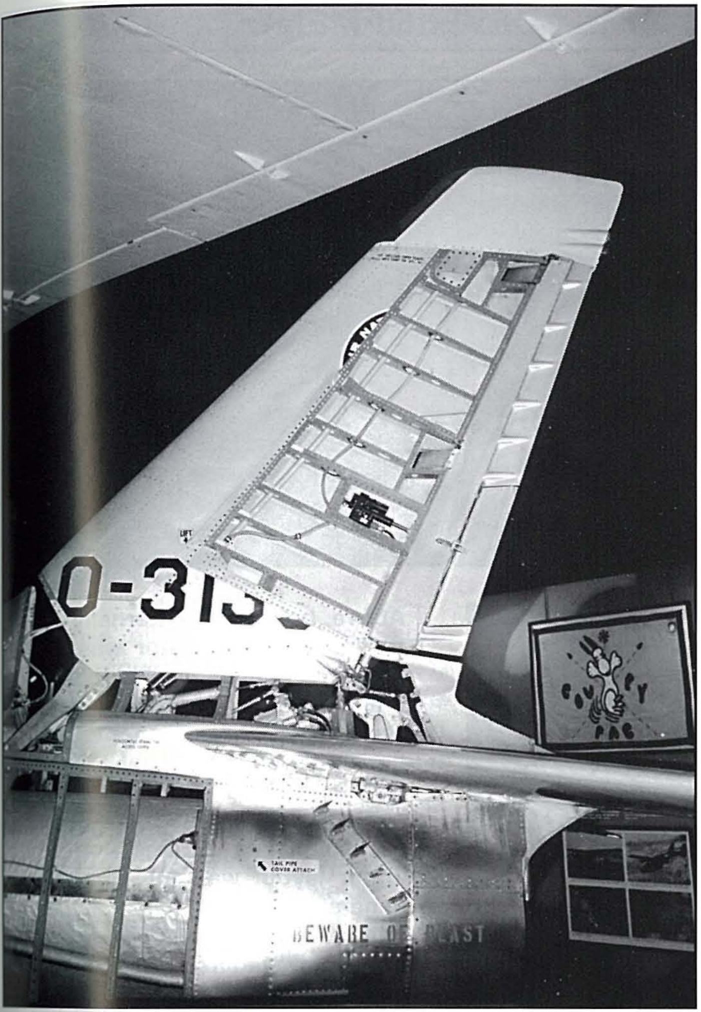
F-86H VERTICAL STABILIZER AND RUDDER DEVELOPMENT

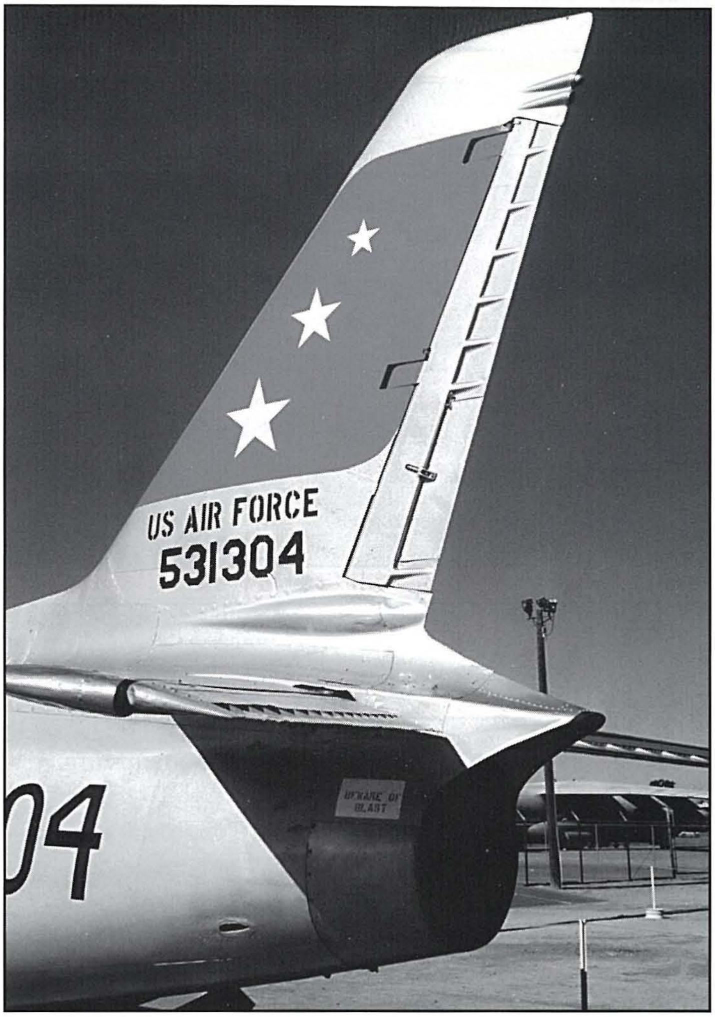
In an attempt to solve the vertical tail and rudder buffet problems a Navy FJ-2 vertical tail and rudder were installed on 52-1975. Flight 152 was flown on 3 August 1954 with the FJ-2 vertical tail. A number of test points were flown during the 30 minute flight to compare the tail buffet against the standard F-86H configuration which now included a rudder damper. During the last test point the aircraft was dived from an altitude of 45,000 feet during which an indicated Mach number of 1.06 was obtained at an altitude of 25,000 feet. At this altitude a recovery was initiated under an acceleration of 2.5G. As the Mach number decreased to 1.03, severe rudder buffet, comparable to that experienced on previous F-86H type aircraft without the rudder damper installed, was encountered. Immediately the power was reduced and the speed brakes were opened and the G decreased which eliminated the rudder buffet. Therefore, the FJ-2 vertical tail and rudder combination was deemed unsatisfactory.







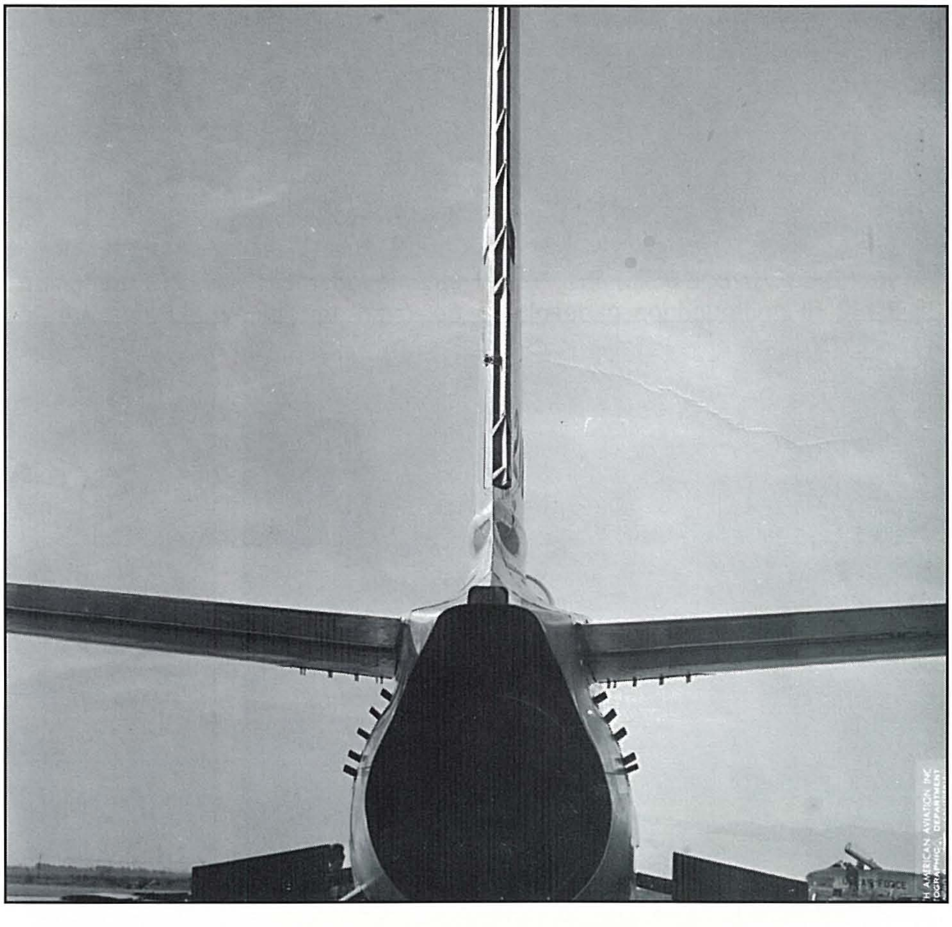




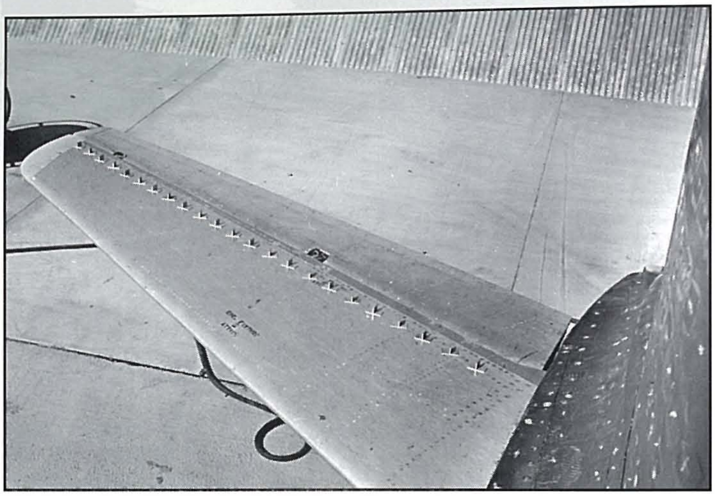
F-86H TAIL GROUP

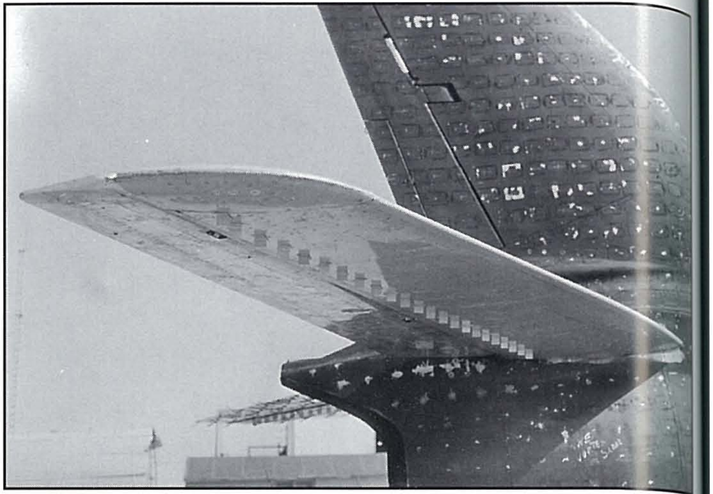
Previous page at top, Navy FJ-2 fin and rudder fitted on 52-1975 for flight 152 on 3 August 1954. (North American Aviation via Bill Simone) Far left, test splitter rudder installed on 52-1976. (North American Aviation via Bill Simone) At left, production splitter rudder on 52-1986 on 22 July 1955. Trim tab structure was covered and the remainder of the rudder trailing edge was exposed. (North American Aviation via Bill Simone)

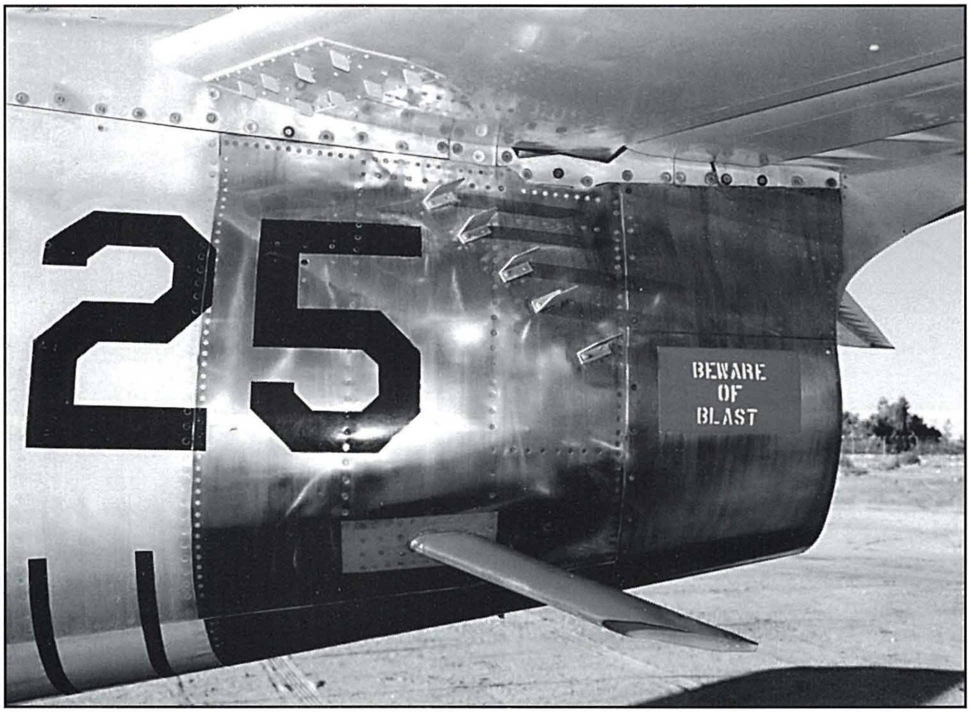
Above, production rudder on the U.S. Air Force Museum's skeleton F-86H in 2002. Note location of fuselage vortex generators. (Michael May) Above right, production rudder on the March AFB museum's F-86H-10 53-1304 in 2003. Fin flash is red. Note elevator trailing edge is of the splitter type like the rudder to control tail group buffet. (Ginter) At right, rear view of 52-1976 on 13 May 1955 with finalized rear fuselage and lower horizontal stabilizer vortex generators fitted. Aircraft had the test-type splitter rudder and original non-splitter elevators. (North American Aviation)



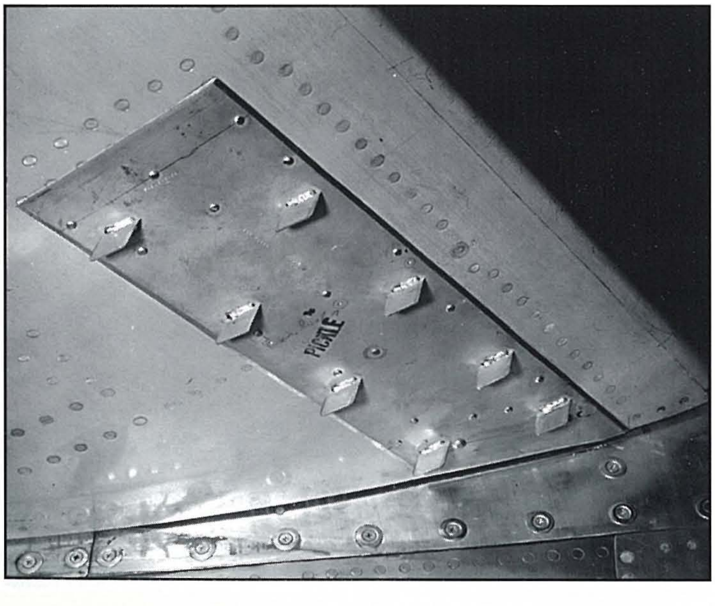
F-86H VORTEX GENERATORS DEVELOPMENT

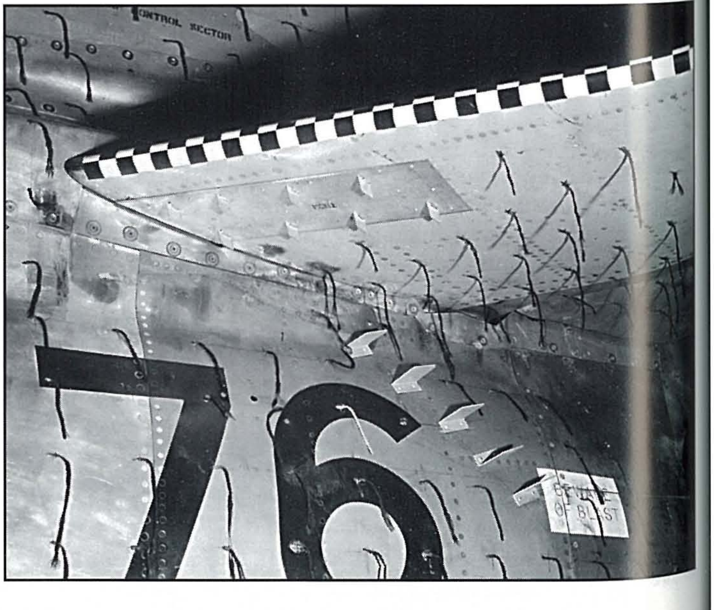






Above, before the externally ribbed trailing edged elevator was settled on as the final fix for production aircraft, full span vortex generators were tested on the upper and lower horizontal stabilizer just forward of the elevator during flight 136 on 52-1976. (North American Aviation via Bill Simone) At left: final vortex generator layout was for eight vortex generators fitted on a plate to the inboard forward underside of the horizontal stabilizer and five vortex generators angled aft below the horizontal stabilizer on the aft fuselage. The fuel dump pipe was red. (Ginter) Below left, final location of the eight vortex generators tested on 52-1978 differed from the production fix only in the shape of the mounting plate. (North American via Bill Simone) Below, final location of vortex generators of 52-1976 on 4 May 1954. (North American via Bill Simone)





The Big Three: F-86H, Canadair Sabre Mk,6, Commonwealth CA-27 Mk.32

	Sabre Mk 6	F-86H-10	Commonwealth CA-27 Mk 32
Empty Weight	11,143 lbs	13,836 lbs	12,120 lbs
Maximum Weight	17,611 lbs	24,296 lbs	18,650 lbs
Internal Armament	6 x 50 cal machine guns	4 x 20mm cannon	2 x 30mm cannon
Initial Rate Of Climb	11,800 fpm	12,900 fpm	12,000 fpm
Maximum Speed At Low Altitude	698 mph	692 mph	700 mph
Maximum Speed At High Altitude	630 mph	617 mph	607 mph
Service Ceiling	54,100 ft	50,800 ft	55,000 ft
Ferry Range	1,495 miles (2 x 200 gal drop tanks	1,810 miles (4 external tanks most likely)	1,150 miles (2 x 200 gal drop tanks
Engine Type And Thrust	Orenda 14; 7,440 lbs thrust	General Electric J73-3D; 8,920 lbs thrust	Rolls Royce Avon 26; 7,500 lbs thrust

While no one will deny that the F-86F was an excellent jet fighter and served the U.S. and its allies very well, it wasn't the ultimate Sabre day fighter. Three later versions of the Sabre followed it and each was characterized by features that were dramatic departures from the basic Sabre day fighter standard.

Which of these three was the best? The answer depends on who you ask and is generally more subjective than objective. Nevertheless, the chart at right gives a good starting point for comparison.

While all three of these Sabre variants could carry external stores, the Mk.6 and Mk.32 Sabres were employed by the air arms that used them principally as interceptors and air superiority fighters. The F-86H on the other hand, served principally as an air-to-ground weapon. Admittedly, because of its heavier weight and higher wing loading, it initially proved unsuitable for high altitude air combat, but at lower altitudes it appears it could hold its own with aircraft of its generation.

Sabre day fighters, broadly speaking, were known for being stable gun platforms, but the F-86H appears to have been the best. In addition, it had the roomiest cockpit.

Pilot Emmett Hatch, comparing the F-86H to the F-86F, made these comments: "The F-86H was equipped with the GE-73 turbo-jet engine. This was a twin spool compressor engine with variable guide vanes. As pilot/operators this information did not mean much to us, except that this engine produced a hell of a lot of thrust (8900-9200 lbs of thrust with no afterburner). The 'H' was a much heavier aircraft than the 'F', the cockpit was much roomier and it was a very stable gun platform. The 'F' was very sensitive in pitch at high indicated airspeed at low altitude, so much so pilots named this pitching phenomenon the JCs (the first guy who encountered this uncontrollable pitching oscillation was reported to have cried "Jesus Christ"!). North American labeled it 'pilot induced oscillations'. The phenomenon would begin when the aircraft would pitch up/down and the pilot, in an attempt to correct, would move the stick either forward or rearward. The problem was you were already out of phase, and each input would aggravate the situation and the oscillations would increase to the point where you could pop up out of formation by several hundred feet before you could regain control.

The 'H' did not have this sensitivity and was very comfortable at high speed at low altitude. The fuel controller was a dream, rapid movements of the throttle would not have an adverse affect on the engine, the fuel controller would smooth out even "ham handed" inputs. However, the down side was that the engine was slow to decelerate when the throttle was moved to idle creating long hot landings.

The first F-86Hs had the 6-3 solid leading edge wing and it could not even turn with the F-86F that we (50th FBW) still had simultaneous with the new F-86Hs. And at this stage in the game it was not equal to the Mk. VI Sabre. However, when fitted with leading edge slats and the new rudder, the F-86H was unequaled to any non-afterburning F-86. Because of the change in mission to special weapons delivery which meant three fuel tanks (two 200 gallon and one 120 gallon) and the special weapons rack or dummy weapon, the F-86H was no longer capable of performing an air-to-air role. The only time we flew the aircraft clean (no tanks) was during gunnery practice in Tripoli (Whelus AFB) and it was a real performer. It was a heavier aircraft but the additional power of the J73 made all the difference. Since I flew the F-86E, F, H and I flew the F and H against the Mark VI, I would give the nod to the later H."

The Mk. 6 and Mk. 32 Sabre were closer in configuration to the F-86F than the F-86H and likely weren't as stable as the "H" in the gunnery pattern and neither had the H's ferry range or rate of climb.

The F-86H had a somewhat higher empty weight but a significantly higher maximum weight. The F-86H's 20mm cannon armament was significantly more potent than the .50 caliber machine guns of the Mk. 6 Sabre. That the Australians didn't opt for the 20mm cannon for their Mk. 32 Sabres suggests that the two 30mm cannon were, in their opinion, more potent than a quartet of the smaller cannons, but that's speculation on the authors part".

CORWIN "CORKY" MEYER'S IN-FLIGHT EVALUATION OF F-86H-1 52-1983

AD INEXPLORATA

Well-known Grumman test pilot Corwin "Corky" Meyer test flew F-86H, serial number 52-1983, on 12 May 1954. He was authorized by then LCOL Frank Everest to make a one hour flight. The aircraft was configured with the 6-3 wing with no slats and two 220 gallon drop tanks.

Corky noted the increase in engine air inlet size and the increase in the size of the horizontal tail. He further noted that on this model of the F-86 there was no dihedral in the horizontal stabilizer.

On this particular airplane, the one foot wing tip extension modification hadn't been made. He noted that while slats were to be installed on future aircraft to give them the ability to pull 3G at an air speed of 180 knots, the airplane in its non-slatted configuration could pull only 1.6G at the same airspeed.

Comparing the F-86H to the F9F-8 Cougar, he noted that the F-86H had a wing loading of 64 lbs per sq ft in the clean configuration. He further noted the F-86H had a thrust loading (ratio of aircraft weight to engine thrust) of 2.1 compared to the Cougar's 2.65, both aircraft in clean (no external tanks or weapons) configuration. With full external tanks installed on the F-86H, the ratio goes to 2.42.

His positive comments about the F-86H's performance included:

1.) The airplane has "power to spare at all altitudes."

2.) Climb, acceleration and dive performance were considered exceptional.

-Standing start to 40,000 feet in 6.5 minutes.
-Acceleration to Vmax was better than other airplanes flown, even those equipped with afterburner.
-In a dive, the airplane could easily exceed Mach 1.0 at 40,000 feet with external tanks installed.

For all of his praise for the airplane, he found unacceptable items to note as well:

1.) Rudder flutter imposed limits on the airplane flying above Mach 1.

2.) Problems associated with the two-position variable inlet guide vanes on the engine compressor made cruise control performance unacceptable.

3.) The airplane's high wing loading made general flight characteristics unacceptable at altitudes above 40,000 feet.

4.) Aircraft stall characteristics were considered unacceptable.

5.) The aircraft was very touchy above 30,000 feet in its longitudinal flight regime.

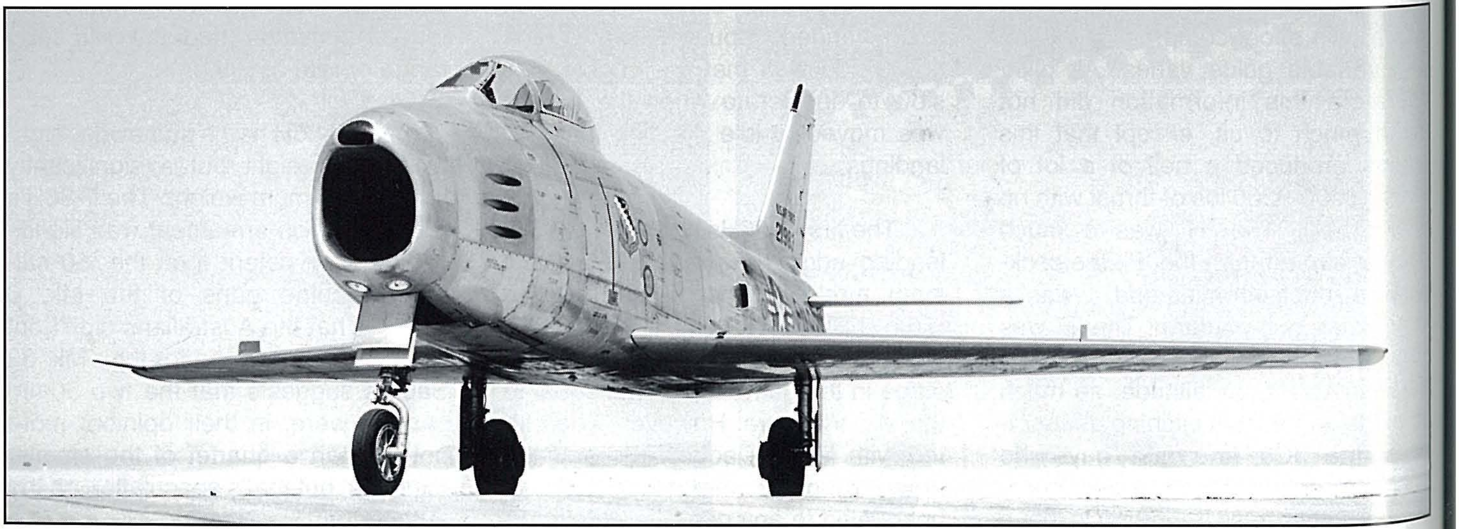
6.) High wing loading negated the advantage of higher engine thrust from the J73 engine.

7.) Pitch-up occurred during stall buffeting and was said to be, "rather strong." However, proper use of elevators quickly stopped the pitch-up.

Corky noted the airplane had "more than adequate" longitudinal control for take-offs and landings. Further, the nose wheel could be made to come off the ground, during the take-off roll, at any speed above 80 knots, regardless of the trim setting.

The following comment is noteworthy: "The airplane was dived to .98 IMN (indicated Mach number) and

Below, F-86H-1 52-1983 was the aircraft Corwin Meyers used during his evaluation. Note AFFTC logo on the fuselage side. (via Ray Puffer AFFTC Historical Center)



no rudder buzz was encountered. It was later stated by a North American pilot that at 1.03Mach the buzz occurs and has been divergent enough to tear off the dynamic balance weights. It also does not die out until the Mach number has slowed down considerably below this. It is interesting to note that the other F-86 models with exactly the same fin and rudder combination do not get in this trouble."

Corky noted that the lateral flight characteristics of the F-86H were the same as those of the F-86E equipped with irreversible ailerons. He noted the F-86H's roll rate decreases significantly above .90 IMN and wing dropping takes place in the .94 to .96 speed range. The installation of vortex generators on the aft fuselage was seen to have decreased the tendency to drop a wing when the aircraft was flying in the transonic range.

F-86H Vmax was limited to .925 IMN due to the thickness of the wing, which was noted as being identical to other F-86 models. Corky noted that, with the airplane's excess power, it "appears obvious that this airplane will be used for lugging external stores."

While making a 30° bank at 43,000 feet, the airplane showed a strong tendency to stall and buffet; a tendency to pitch up and to alternately drop a wing. A 45° bank at an air speed of .85 IMN couldn't be maintained above 36,000 feet.

Cruise performance was compromised because the best cruise speed was at an engine setting that put the engine inlet guide vanes somewhere between the two established positions; i.e. within the inlet guide vane shift, from one position to the other, range. North American had a fix in mind that would solve that problem but was awaiting the modification.

Corky was impressed by the climb capability of the F-86H, noting the airplane had a 40% better climb rate at sea level than the F-86F and a 10% better climb rate at 35,000 feet. Service ceiling for the F-86F and F-86H were reported to be the same.

Speed brakes were said to be "almost ineffective." Buffeting caused by speed brake extension was not as bad as that experienced with previous models of the F-86.

Stall characteristics were:

Knots	**"G"**	**Remarks**
180	**1.2**	**Pitches up**
160		**Yaws left**
140		**Buffeting, no pitch-up**
130		**Buffeting, strong left yaw**
115		**Buffeting, strong nose-down pitching**

Corky said, "It is believed that even for a land-based airplane slats would be advantageous. Stalls were so bad in characteristics that no accelerated stalls were attempted."

Discussing engine operation, Corky commented that he considered the P-3-A engine control was, in his opinion, "fair" but the Air Force considered it poor. Apparently, later controls were available that met Air Force standards. On the ground, the engine accelerated from 45% to 100% power in 9 seconds and Corky thought that was very good. He found that engine thrust at idle rpm was high and it was necessary to apply the brakes frequently once the airplane began rolling.

Although not noted on Corkys flight, engine problems plagued the airplane throughout its early operational carreer. During testing, the one engine feature that disturbed pilots was a distinct duct rumbling that took place when the throttle was set below 80% and the airplane was in the landing configuration. The condition would come on suddenly and was quite an attention-getter.

Describing the engine starter, Corky said: "The starter mechanism was a gasoline-fired air turbine which spun the engine up to about 30% in 3 to 4 seconds. This starter was charged by the engine and the airplane could be started without a special starter rig (ground power unit). The engine starter gave rather hot tailpipe temperatures which had to be controlled by moving the throttle back around the idle detent in the emergency control."

Commenting on external stores stations, Corky noted the leading edge of the bomb rack was cambered, which greatly reduced buffeting. No buffet was noted in this area up to .97 IMN.

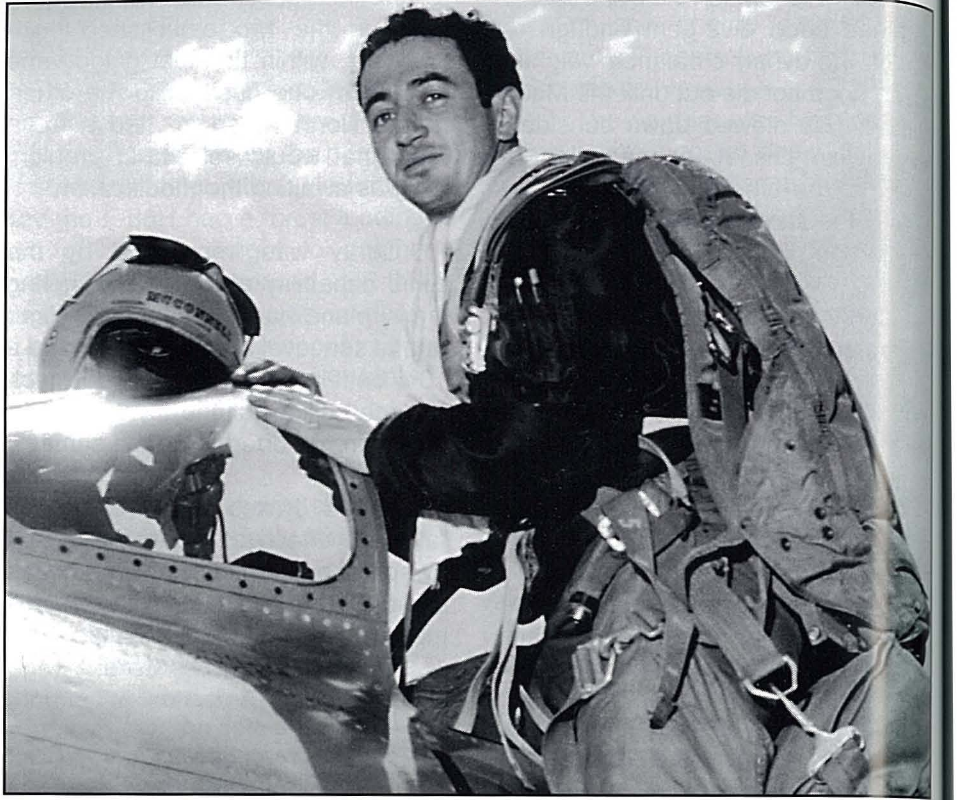
Below, Grumman F9F-8 Cougar.

THE DEATH OF CAPTAIN JOSEPH McCONNELL, JR.

It has been stated by at least one source that the F-86H is perhaps best remembered as the airplane in which the top USAF ace of the Korean Conflict, Capt. Joseph McConnell, Jr., was killed. This author, seeking to provide an accurate account of events surrounding that crash, successfully acquired a copy of the crash report and it tells a tragic tale.

The accident took place on 25 August 1954. Capt. McConnell was conducting a flight associated with Phase VI aerobatic testing. The test aircraft was an F-86H-1, serial no. 52-1981, the seventh F-86H built.

What follows is a detailed account of the crash, as recorded in the accident report. In the interest of accuracy and to give the reader the confidence that the following account isn't biased, the crash report is quoted.



Above, Capt. McConnell. (via Dr. Ray Puffer AFFTC)

"On 25 August 1954, Capt. Joseph McConnell took off in F-86H aircraft, Serial No. 52-1981, for an aerobatic test flight. After being airborne approximately twenty minutes, he notified the control tower that he was having elevator control trouble. Radio contact was switched to Fighter Operations radio control. In his conversation with Fighter Operations he indicated that the elevator control had been lost and that he was controlling the aircraft by the use of trim. He stated that he was going to attempt a landing on the dry lakebed. Approximately thirty seconds later, 981 was asked for a position report. His return transmission was very garbled; a few seconds later, a short, badly garbled transmission was heard. Approximately fifteen seconds after this, a column of smoke was observed notheast of Edwards AFB in the vicinity of Boron, CA. The time was approximately 1242 hours, PDT.

Eye witness statements indicate that the pilot ejected below 500 feet. At this low altitude, he was unable to successfully complete bailout. He struck the ground within a few feet of the ejection seat with his parachute unopened. The aircraft continued in flight for 1/2 mile at which time it was observed to partially stall, fall off on a wing and strike the ground approximately one mile beyond the point of pilot's ejection.

Observations at the scene of the accident indicated that the aircraft struck the ground in an approximate 25° angle, right wing low. The aircraft completely disintegrated upon impact, except for the horizontal and vertical stabilizer which remained in a recognizable condition, approximately 75 feet from the point of impact. Wreckage was scattered over a 40 foot arc for approximately 900 feet.

Inspection of the wreckage revealed no in-flight fire. Investigation also revealed the engine was running at the time of impact. Canopy had been fired.

Investigation on the second day revealed that the two bolts attaching the stabilizer rod assembly and the stabilizer feel bungee assembly to the horizontal stabilizer were missing. One bolt was found later within 2 feet of the stabilizer actuator assembly and is believed to be one of the two in question.

The day crew chief of the airplane had removed these two bolts during a maintenance check of the flight control system prior to repositioning the control stick. The removal of these two bolts was not entered in the Form I, Part II and, therefore, supervisory and inspection personnel had no knowledge that these bolts had been removed, hence an inspection was not made for proper installation and security.

If the bolts in question were not properly safetied in position, the disconnect between the stabilizer rod assembly and the hydraulic actuator would cause a loss of longitudinal control. Trim would still be effective until the second bolt attached to the stabilizer feel bungee worked out. At that time, no longitudinal control would be available to the pilot.

Since the removal and installation of these bolts, the aircraft had flown six flights.

The evidence gained in this investigation points strongly to improper maintenance as the cause factor. Since the aircraft had flown six flights prior to the accident, and the loss of both control assembly bolts occurred within a three-minute interval, the possibility of an act of sabotage cannot be eliminat-

ed. However, at this time there is no physical evidence to substantiate such a claim.”

Neither local weather or Capt. McConnell’s physical or emotional condition were found to have a bearing on the accident. An investigation of Capt. McConnell’s activities during the four days preceeding the accident led to the conclusion that he was physically and emotionally fit to fly the required missions.

Capt. McConnell, had, at the time of the accident, a total of 1798:5 hours logged; 1394:5 of which were in jet fighter aircraft. He had accumulated 33:5 hours in the F-86H. Supervisors at the Air Force Flight Test Center and at McConnell’s home base (George AFB), were of the opinion that he was well qualified to perform the flight tests assigned to him. The F-86H Phase VI Project Officer, in his written statement, said it well when he wrote; “....Capt. McConnell was briefed to perform a routine aerobatic test mission according to the mission card that he had in his possession upon take-off. McConnell had previously performed several missions of this type in the F-86H aircraft. I consider Capt. McConnell to be eminently well qualified to perform any of the tests that are required of the F-86H Test Pilots.”

As might be expected, the investigation brought to light other problems that in some way were factors contributing to the accident. Evidence had already been found that quality control at the North American plant in Columbus, OH, was substandard, resulting in the crash aircraft being delivered to the Air Force with one of the flight control rig pin holes drilled 1/4 inch aft of the specified position. Further investigation brought to light the fact that the F-86H Phase VI Flight Test Project Engineer at Edwards AFB didn’t possess sufficient previous aircraft experience, in general, or knowledge of the F-86H, in particular, to effectively supervise the Phase VI Flight Test Program. He had received no formal training on the F-86H at a contractor facility or at Edwards, with the result that he was not well qualified to carry out his responsibilities.

It’s been reported in a recent book that McConnell’s F-86H crashed as a result of a total hydraulic failure. As this author’s account shows, such was not the case. While it could be argued that McConnell waited too long to attempt ejection from the stricken fighter, it’s also clear he was intent on trying to bring the aircraft safely to the ground, if at all possible. It wasn’t possible, and a good airplane and a fine pilot were lost.

ACTIVE DUTY F-86H EQUIPPED WINGS

There have been errors made in various publications regarding which units operated the F-86H in the USAF. Specifically, units which were actually Groups have been identified as Wings and some clarification needs to be made.

Two of the five F-86H wings, the 312th Fighter Bomb Wing and the 479th Fighter Day Wing, had subordinate fighter groups assigned. Both groups in the 312th were F-86H equipped, making it wholly an F-86H unit. The 479th FDW, on the other hand, had only the 413th Fighter Day Group equipped with the Sabre H. Three wings were wholly equipped with the F-86H: the 312th FBW, 50th FBW, and the 83rd FDW.

What has been erroneously reported is that the 474th and 413th groups were wings. They were not at that point in their histories. Not until the 474th equipped with the F-100 did it become a separate wing. The 312th also became a wing at that time and the same could, presumably, be said of the 413th and 479th groups. What’s interesting is that the number of squadrons assigned to these groups and the number of airplanes assigned to each squadron constituted sufficient quantities that, in effect, these groups had “wing” strength and it’s thus easy to understand why they could have been misidentified.

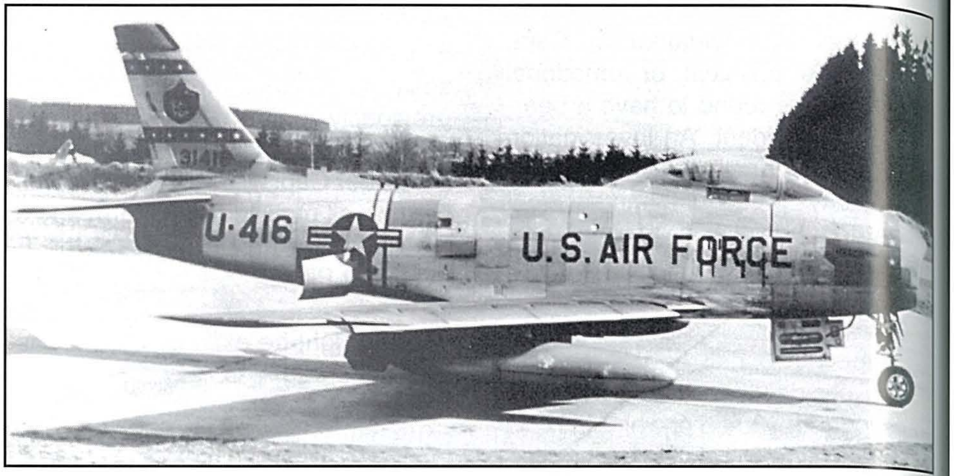
Active Duty Squadrons/Groups/Wings

Wing	Group	Squadron
312th FBW	312th FBG	386th FBS
312th FBW	312th FBG	387th FBS
312th FBW	312th FBG	388th FBS
312th FBW	474th FBG	428th FBS
312th FBW	474th FBG	429th FBS
312th FBW	474th FBG	430th FBS
3595th CCTW		3597th CCTS
3595th CCTW		3598th CCTS
3595th CCTW		3525th CCTS, Fighter Weapons Squadron
479th FDW	413th FDG	1st FDS
479th FDW	413th FDG	21st FDS
479th FDW	413th FDG	34th FDS
479th FDW	479th FDG	Not F-86H Equipped
50th FBW		10th FBS
50th FBW		81st FBS
50th FBW		417th FBS
83rd FDW		532nd FDS
83rd FDW		533rd FDS
83rd FDW		534th FDS

50th FIGHTER BOMBER WING "THE WING OF CHAMPIONS"

50TH FBW

MASTER OF THE SKY



Above, 10th FBS F-86H-10 53-1416 assigned to the 50th FBW in Europe had blue tail and nose bands with white stars and the squadron emblem on the tail. (via Dave Menard) Below, 10th FBS F-86H-10s 53-1405 and 53-1433 over Europe. (USAF via Dave Menard)

The 50th FBW with the 10th FBS (blue trim), 81st FBS (yellow trim), and 417th FBS (red trim) was activated at Clovis AFB, NM (later Cannon AFB), in January 1953. Originally flying F-51Ds, the wing transitioned to the F-86F and in August 1953 relocated to Hahn AB in Germany.

The 50th FBW started conversion to the F-86H with a number of significant accomplishments under its belt. During the first six months of 1955, the wing received the following awards for accomplishments during 1954:

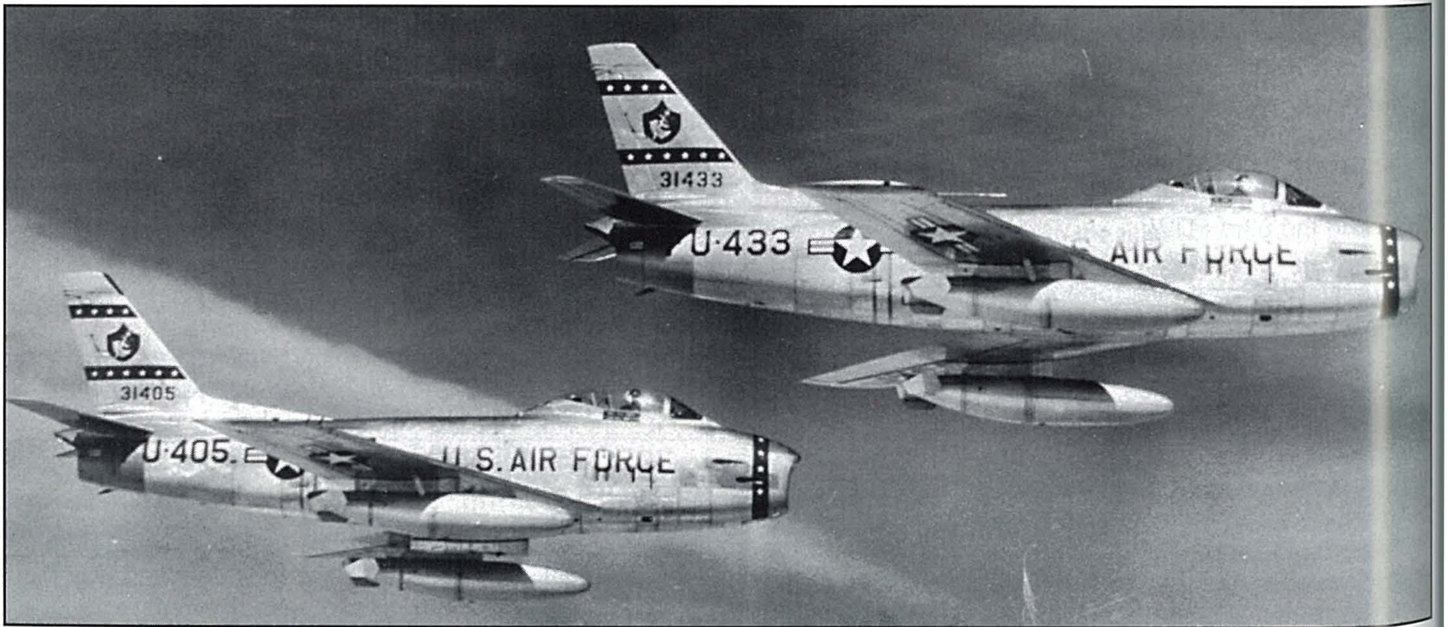
1.) 1954 USAFE Ground Safety Award

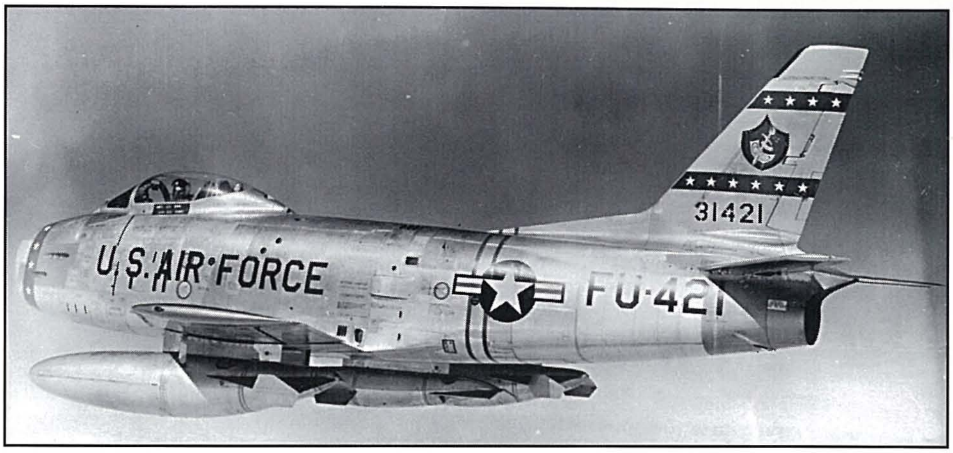
2.) 1954 Fire Prevention Week Contest Award, sponsored by the National Fire Prevention Association (Hahn AB being the only base in USAFE to receive such an award)

3.) 1954 Physical Fitness Award for USAFE

The above accomplishments are mentioned because they reflect positively on the high state of morale on the base. High morale is conducive to significant accomplishment in any organization. Without it, work quality, safety and overall mission accomplishment suffers.

The wing went 118 days without an AOCP (aircraft out of commission, parts) and 143 days without a tactical AOCP. At the time this was believed to be a record for any type of USAFE aircraft and a USAF record for jet aircraft. Adding to the wing's flying safety accomplishments, the month of June 1955 saw the 417th Fighter Bomber Squadron complete one year of accident free flying (7,087 hours) and the 81st FBS also complete one year of accident free flying (9,000 hours). "Accident free" in these instances means no major or minor incidents.





Above, 10th FBS F-86H-10 53-1421 in flight with three drop tanks and an empty pylon reserved for a "special weapon". (USAF via Dave Menard) Below, 81st FBS F-86H-10 53-1418 at Toul-Rosieres AB with yellow nose and tail trim and blue stars. (R. Anderson via Dave Menard)

The first half of 1955 saw changes occur within the wing. In addition to command changes, the 69th Pilotless Bomber Squadron (Light) was assigned directly to the wing and would be redesignated the 69th Tactical Missile Squadron. MGen Fred Ascani USAF (Ret.), a former commander of the 50th FBW, advised in a letter that the 69th was equipped with Matador missiles.

The wing suffered three crashes, presumably not involving aircraft from the 417th FBS or 81st FBS, during this period and all involved fatalities. As the wing hadn't transitioned into the F-86H at this time, the F-86 aircraft involved were F-86Fs.

During this period, the wing was involved in preparations for conversion to the F-86H-10 and conversion of the wing to use Special Weapons. As part of the preparations for the Special Weapons, plans related to construction projects associated with the Special Weapons went forward. In addition, the wing continued work on completion of communications and navigational aids projects. On 21 October 1955, the wing received its first five F-86H Sabres. All were brand new jets.

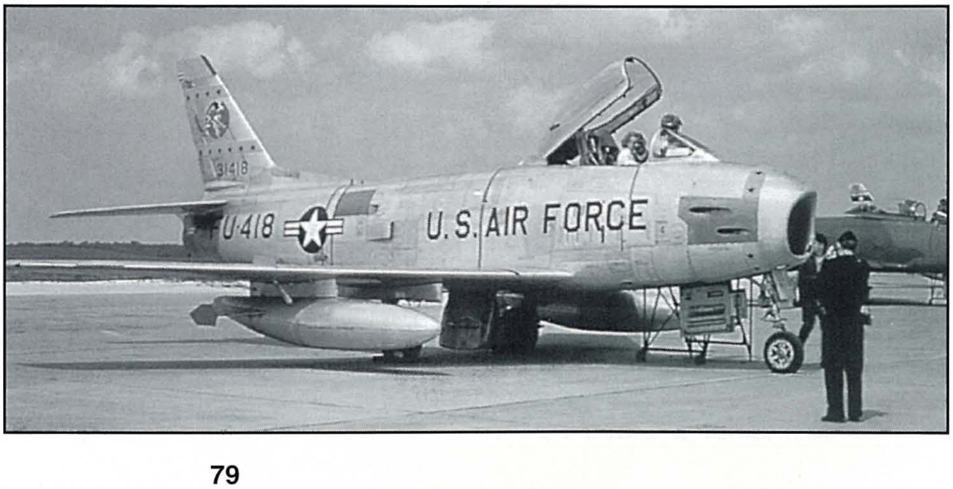
Author's Note: The 50th FBW Historical Reports for the period July 1955 through December 1956 remain classified, as I found while attempting to review these documents at the Air Force Historical Research Agency at Maxwell AFB, AL. The reason for the continued classified status, acknowledged by Gen Ascani, is the wing had a nuclear commitment at the time and information about its operations and procedures remain sensitive up to the present.

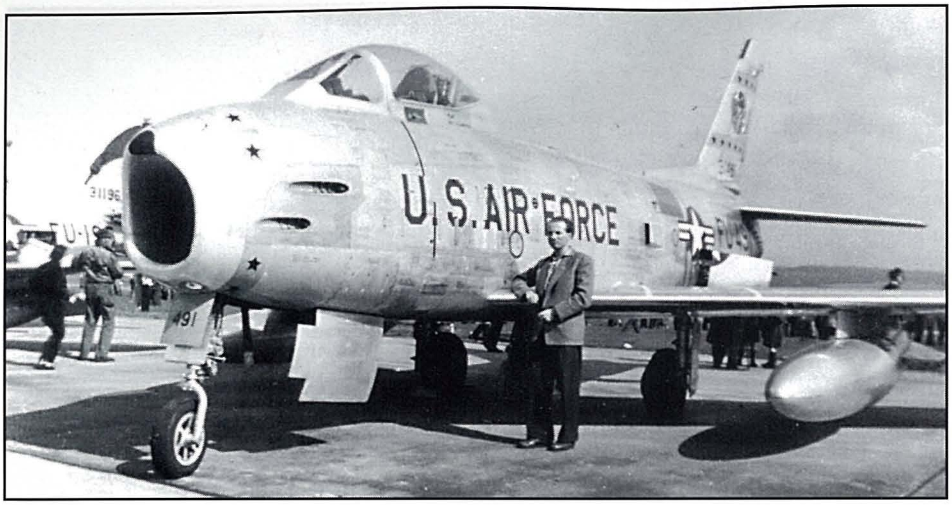
The 50th FBW moved from Hahn AB, Germany, to Toul-Rosieres AB, France, in July 1956. The wing had made the conversion to the F-86H-10 by that time and presumably had successfully completed the transition to the use of Special Weapons. The anticipated conversion to the F-100D Super Sabre brought changes and efforts were made to bring the manning level to 30% higher than authorized as of 31 December 1956.

The wing was, at this time, operating from the main base at Toul-Rosieres, from Sembach AB, Germany (Detachment One 50th FBW), a Dispersal Operational Base (DOB) at Chennevierres, France, and at similar bases at Pferdsfeld, and Neuberg, Germany.

During the period 1 January through 30 June 1957, the wing flew 11,583 hours and made 8,766 landings without an accident or incident and all but 974 of these hours were in jet aircraft. This accomplishment was truly significant and can be appreciated in light of the fact that the wing had a large number of inexperienced pilots, frequent difficult flying weather and a base runway that was dangerously slippery when wet. The wing had transitioned twenty-seven pilots into the F-86H and eight of these had reported directly to the wing from basic flying school.

The wing deployed three squadrons to Wheelus AB, Libya, starting in January. The 81st FBS deployed on 10 January and the 10th and 417th FBS deployed in February. The gunnery portion of the training was to have gone on through the summer, but was abbreviated due to commitments made by the 12th Air





Force. The last F-86H returned to home base on 10 May.

Conversion to the F-100D began in May 1957 and was facilitated by the fact that many of the wing's maintenance personnel were already familiar with this version of the Super Sabre.

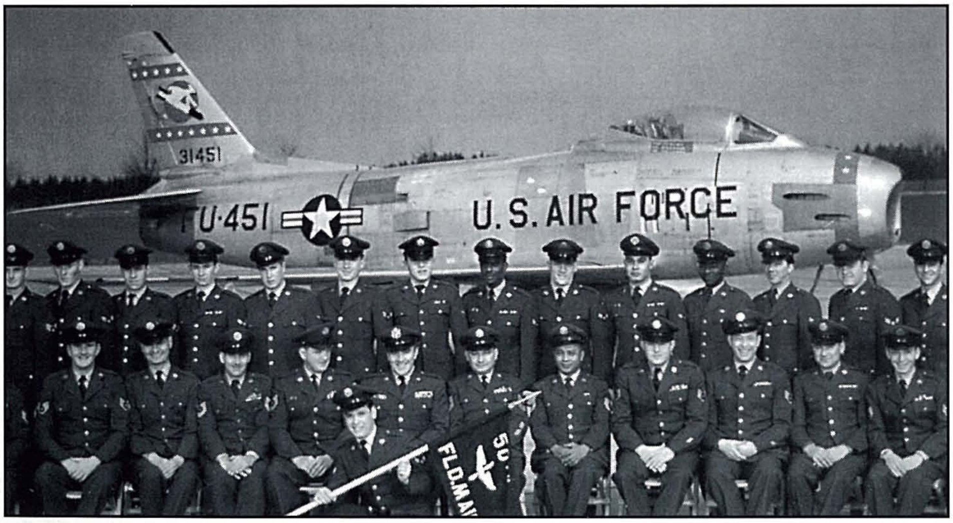
The 428th FBS, 474th FBW (home based at Cannon AFB, NM), arrived at Toul-Rosieres AB on 1 April 1957 relieving the 429th FBS which had been on the base since September 1956. The 428th was to remain on the base for a similar period of time (six-months).

The 50th FBW's Detachment One at Sembach AB continued its assigned mission during the beginning of the transition period. It was tasked with the ability to launch preplanned atomic strikes and other strikes as ordered by higher headquarters. "Other strikes" seems to imply conventional strikes. Whether this implied the use of chemical or biological weapons isn't clear and may be the reason some of the unit's history remains classified. The Detachment was also tasked with the ability to deploy to predetermined Dispersed Operating Bases if required. Dispersed Operating Bases are now more commonly known as Forward Operating Locations.

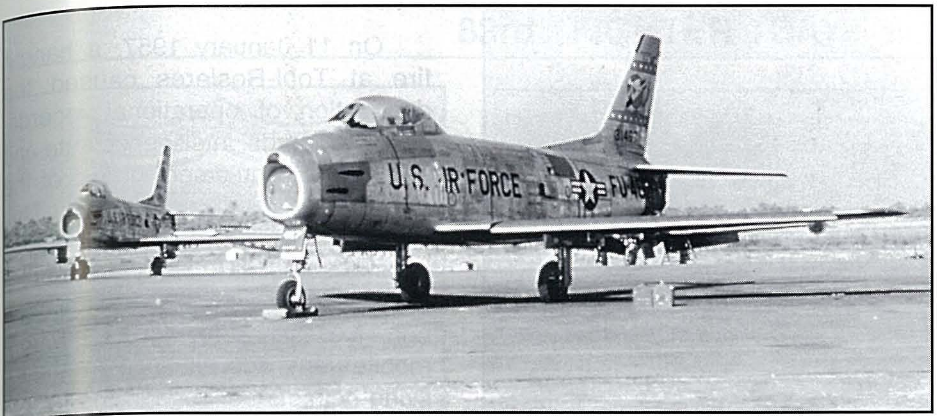
Experience proved that manning detachment One with pilots from one squadron was the best mode of operation. The men would work better as a unit and mission accomplishment would be more likely. One squadron manned the Detachment during the first week of January 1957, but during the second week, five pilots each from the wing's three FBSs manned the detachment. During the last two weeks of January ten pilots, five each from the 417th and 429th FBSs, manned the detachment. Apparently, this mixing of crews continued until June 1957, when the 429th FBS assumed responsibility for manning the detachment. Operations, maintenance and supply procedures improvrd dramatically.

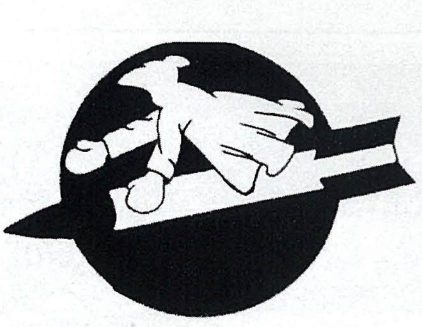
On 15 March, the detachment participated in a 12th Air Force "Stillborn" Operation. Two hours was allowed to complete mission requirements and the detachment exceeded that by fifty minutes. The time lag was shown to be caused by notification procedures from higher headquarters and not by problems within the detachment itself. Loading drills increased steadily after the initial "Stillborn" Operation and peaked at 23 in May. The intensified training paid rich dividends during a second "Stillborn" Operation as the unit had no problem meeting the two hour limit.

As was mentioned earlier, the 50th FBW set records in maintenance and safety. Given the weather in Europe and runway conditions at home base, this was and is remarkable. Nevertheless, the wing did have accidents and, to its credit, did an admirable job of learning from these



At top left, 81st FBS F-86H-10 53-1491 during open house at Sembach AB, Germany, with Horst Stiller, a WWII Focke-Wulf Fw 190 fighter pilot, standing by the wing. (Heiko Stiller)At left, 50th FBW Field Maintenance Squadron photo taken in front of a 417th FBS F-86H-10 53-1451. The 417th had red nose and tail trim with white stars. (via Dave Menard)





417TH FBS

tragedies and reversing the trend during the first half of 1957. The table below shows the trend.

	Jan-Jun '56	Jul-Dec '56	Jan-Jun '57
Total Hrs. Flown	13,099	6,559	11,583
Accidents	6	6	0
Accident Rate per 100,ooo hours	45.81	91.48	0

The overall accident rate for calender year 1956 was 61.04. An intense effort on the part of Wing Safety and the individual squadrons themselves contributed to a highly successful safe six month period of flying during the first half of 1957. A breakdown of hours flown by wing aircraft, by type, shows how much of the success can be attributed to the jet pilots and their maintenance people:

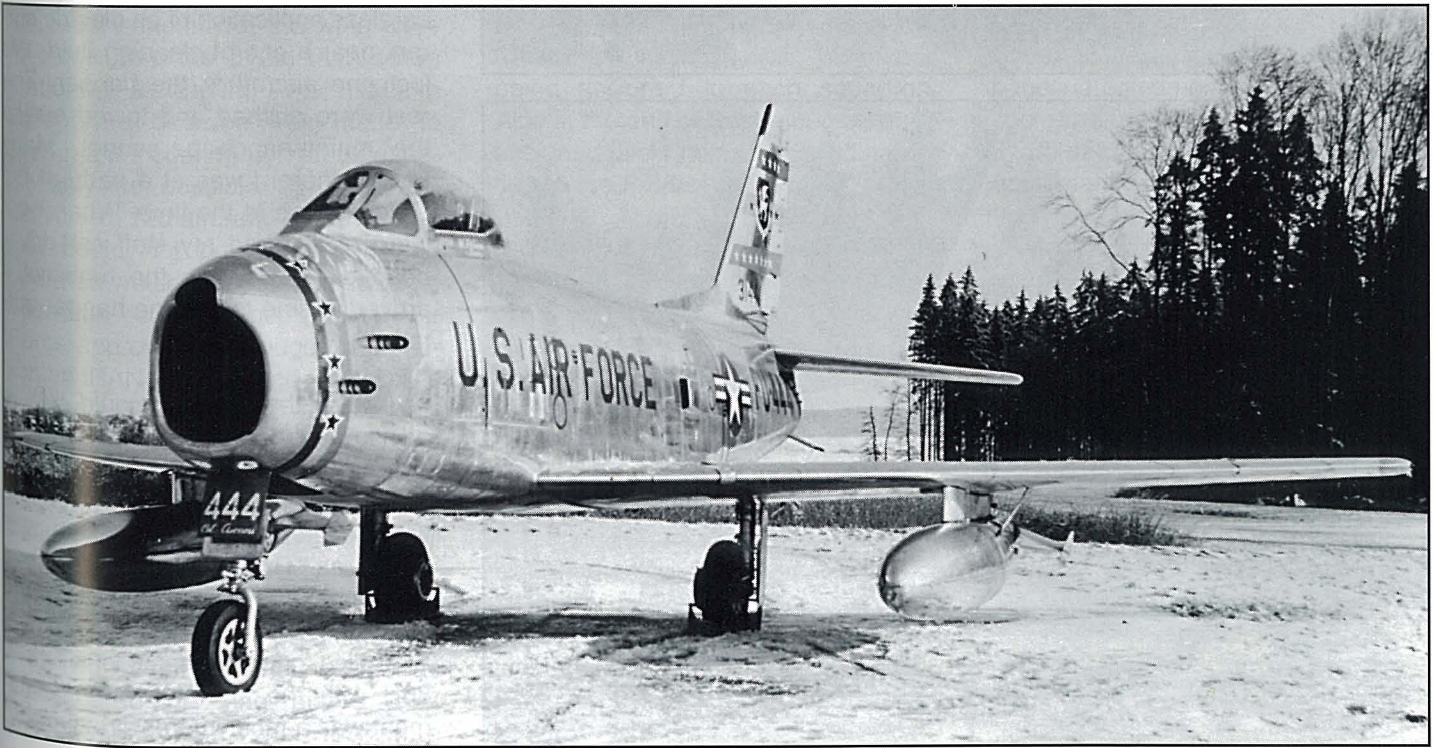
F-86H	**9,458 hours**
T-33	**1,151 hours**
C-47	**937 hours**
L-20	**37 hours**

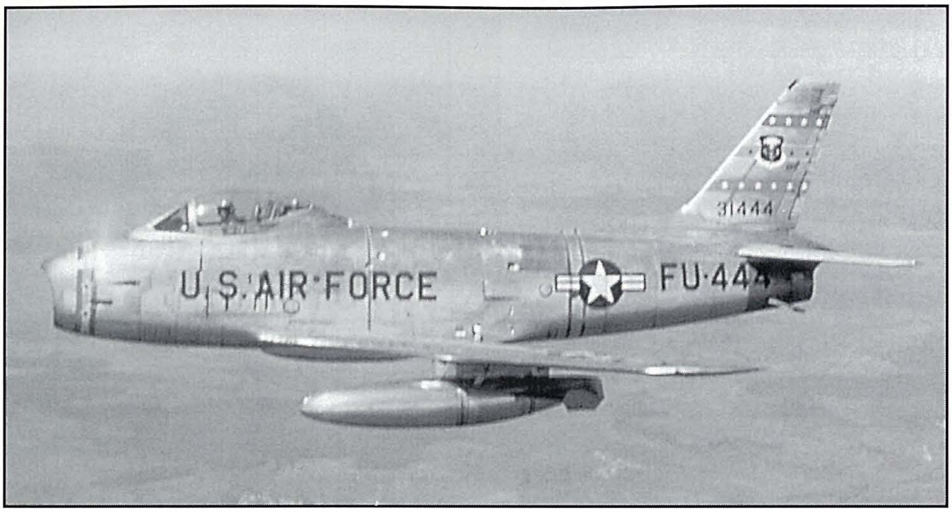
Utilization and maintenance of the wing's primary tactical airplane, the F-86H-10, was impressive, given the unit's location and means of moving supplies from CONUS to the wing, as indicated by the table below.

Average number of aircraft on hand	**78**
Total # of programmed flying hours	**8,861**
Total # of hours flown	**9,458**
Average # of hours flown per assigned aircraft per month	**20.24**
Average in-commission rate	**69%**
Average aircraft out of commission for parts	**7%**
Average aircraft out of commission for scheduled maintenance	**11%**
Average aircraft out of commission due to malfunction	**10%**
Average aircraft out of commission for technical order compliance	**1%**

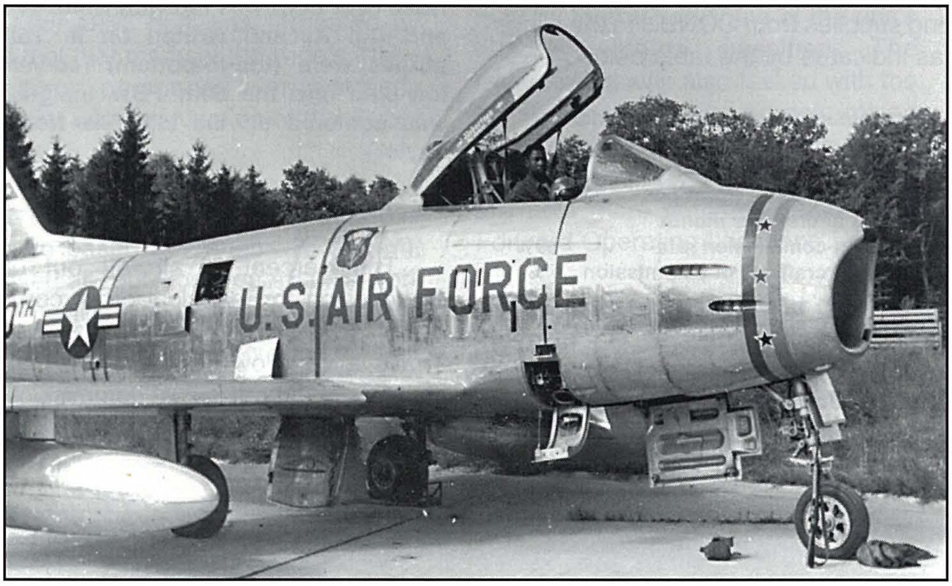
Above, two 417th FBS F-86Hs with 53-1467 in the foreground. (Ginter collection) Below, personal aircraft of the 50th FBW wing's Commanding Officer, Col Ascanti, was F-86H-10 53-1444 at Toule-Rosieres AB France in 1956. Nose stripes were red-yellow-blue. Nose gear door was red with white 444 and Col Ascanti written on it. Tail stripes were (top-to-bottom) red-yellow-blue and the 50th FBW insignia was centered on the tail. (via Norm Taylor)

The percent of aircraft out of commission for technical order compliance was especially impressive. That's a very low number. The percentage of aircraft out of commission for lack of parts was also quite impressive.





Above, Col Ascanti's highly polished F-86H-10. (Ascanti via Dave Menard) Below, 1955 photo of Col Robertson's F-86H-10 53-1500 at Hahn AB, Germany. Serial # had 3,1, and last 0 painted white. The buzz # became FU-50TH. Nose and tail stripes were red-yellow-blue. U.S. AIR FORCE was in medium blue (E. Spangler)



On 11 January 1957, a hangar fire at Toul-Rosieres caused the destruction of operational records, training records, intelligence data and all personal equipment of two of the assigned tactical squadrons. This severely hampered tactical operations but the wing continued to operate in a completely professional manner. Two squadrons operated from mobile vans and pilots often shared flying helmets because of the lack of personal flying equipment. In time, the required data was gathered and recorded and necessary records were recreated. The unit bounced back and maintained its mission capable rate amidst trials such as this and the conversion to the newer F-100D.

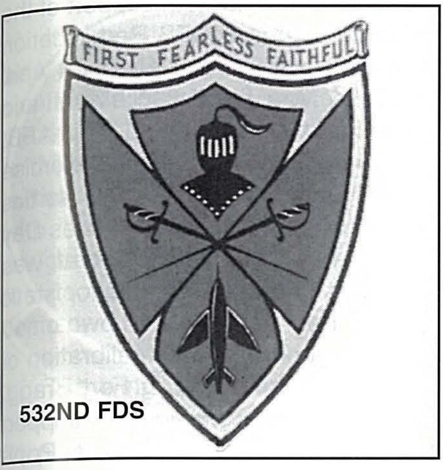
As is evident, the 50th FBW was a well-led and highly motivated unit and its operational capabilities reflected the pride and professionalism of its personnel. The unit continued to operate the F-86H through 1957 and when the planes finally stood down, they were flown to Chateauroux AB, France and were scrapped.

It's fitting to close this chapter with comments made by Gen Ascani.

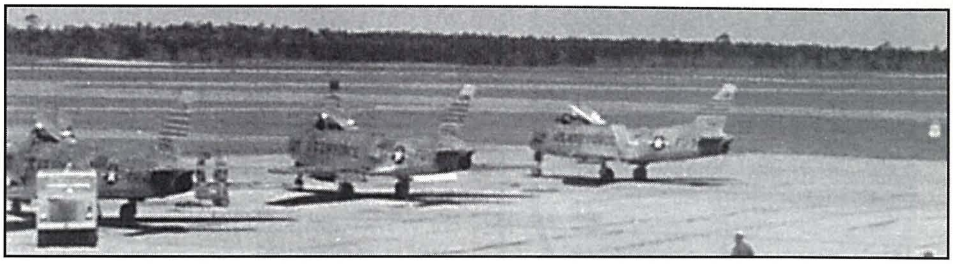
"The hangar fire was especially depressing because the cause was a careless application of an electric current near a can of cleaning fluid. We lost one aircraft in the hangar. The rest were pushed and towed out by the maintenance personnel. Many heroes there! I was at a party at the Officers Club at the time. When I got word of it, I had my staff car driver head directly across the runways. arrived in time to see the hangar gutted.

Other than that, I would like to advise you that, beginning during my stay with the wing at Hahn AB and continuing until my departure from the wing located at Toul, the 59th was known as "The Wing of Champions." We won practically every title there was to win in security, maintenance, Air Police, gunnery meets, etc. The F-86H with the 20mm cannon armament was a most impressive aircraft."

83rd FIGHTER DAY WING



532ND FDS



The three squadrons assigned to the 83rd FDW carried four tail stripes outlined in white on the vertical tail. The 532nd's stripes were red, the 533rd's were blue, and the 534th's were green. Above, three red-striped 532nd F-86Hs with the last one being being the CO's aircraft. (Col H. Bomberger via Menard)

The 83rd FDW was activated as a unit of the 9th Air Force at Seymour Johnson AFB on 8 July 1956, as directed by General Order #35, dated 19 June 1956. Col Robert C. Richardson III was assigned commander. The wing was tasked to maintain combat effectiveness in the following areas:

1.) Carry out visual interception and destruction of enemy aircraft in the air.
2.) Operate under direction of Aircraft and Warning systems during visual intercepts.
3.) Provide point defense (against enemy aerial attack) or area cover for friendly forces.
4.) Locate and destroy enemy surface targets as required.

F-86H aircraft for the wing were to come from the 312th FBW, then stationed at Clovis AFB, NM. In October, a decision was made to accept the incoming aircraft as expeditiously as possible by accepting delivery of 120 aircraft. Those aircraft that could not be maintained and operated would be placed in storage. This plan soon changed and 9th Air Force approval was sought to establish an IRAN (Inspect And Replace As Necessary) Program to absorb surplus aircraft. Approval was given and by the end of January 1957 the wing had received, processed and was maintaining in flyable condition its full complement of aircraft.

The wing started operations with only two aircraft, a C-45 which was assigned to the wing, and a C-47 which was on loan. Two F-80s were assigned in September and in October another C-45, two F-80s and two T-33s were received. Two C-119s and three more T-33s were received in October. Flying operations, which were slow to begin due to limited equipment and growth problems associated with getting the wing up on its feet, began to pick up.

The F-86H checkout and transition began the second week in October when Col Timothy F. O'Keefe, Deputy Wing Commander (DCM) and LtCol James J. England, 83rd Fighter Day Group Commander, received their initial checkout at Cannon AFB, Clovis, NM. The first four F-86Hs arrived on 12 October, and were assigned to the 83rd FDG.

Pilot checkouts in the F-86H at Seymour Johnson began the first week of November. The Sabres continued to be delivered until the end of December 1956, when the group had a total of 42 assigned, 14 planes being assigned to each squadron. Also at the end of December, 33 of 45 assigned pilots had completed transition to the F-86H.

To its credit, the wing handled the transition to the F-86H remarkably well. Less than 10% of the maintenance personnel assigned to the wing had even seen an F-86H, much less worked on one and, initially, the wing didn't have the advantage of having North American Aviation (NAA) technical representatives (tech reps) available. Further, most of the assigned technicians were just out of school or hadn't been out very long. Problems were compounded by the lack of aircraft electricians, engine mechanics, hydraulic specialists and armament personnel.

That it handled the situation as well as it did is all the more remarkable when the way the wing came into being is taken into account. Initially, there had been some question as to whether the wing would even be activated. Then there was the question of when it would be activated. The question of what type of aircraft the wing would operate compounded the problems, and the problems didn't end there. Shortly after the wing was activated in July 1956, news came that the aircraft would come from the 312th FBW. That in itself was not a problem, but the 312th was converting to the F-100 Super Sabre and much of the ground handling equipment and special tools could be used on the F-100. The 312th naturally wasn't going to let the equipment go.

In addition, the supply situation aggravated an already difficult situation. The Air Force had purchased the F-86H in limited numbers (475) and the amount of spares, special tools and ground handling equipment was also limited. By the time the 83rd began transitioning to the plane, it had been in service for about two years and the supply system couldn't meet the demands being placed on it.

The tech reps arrived, apparently prior to November, and set up classes to train the maintenance people, but it quickly became clear the mag-

533RD FDS

nitude of the task called for a Maintenance Training Detachment (MTD). The MTD arrived in early November and formal training of maintenance personnel began on the 26th.

The 83rd FDW worked toward fully operational status between January and June 1957. The wing's full allotment of F-86H aircraft had all arrived by mid-February. 52 pilots were assigned to the wing at the beginning of January and 50 had been transitioned into the aircraft. The wing had, at that point, three Fighter Day Squadrons (FDS), the 532nd, 533rd, and 534th.

The wing went through a brief transition period and, with that completed, made arrangements to occupy a gunnery camp at Eglin No. 2, an Eglin AFB, FL, auxiliary field, beginning around 1 April 1957. Consequently, April and May found the wing's major effort going toward supporting the gunnery exercise being held at Eglin AFB.

The gunnery program was completed in June and the wing was declared fully operational. Ninth AF assigned the wing a majority of the Firepower demonstrations to be given, in addition to numerous other tasks usually associated to normal peacetime operations.

The attainment of fully operational status was marred when , on 22 April, an F-86H was lost when the pilot lost control of the aircraft and ejected at 20,000 feet. The pilot survived the crash which took place approximately nine miles from the base.

The wing turned in a good record of tactical flying hours flown and number of hours flown per pilot during the January through June period. 5,348 hours were flown and the average hours per pilot was 73; just over 12 hours per pilot per month.

Gunnery training at Eglin ended on May 21st with a Wing Gunnery Meet. Events included dive bombing, skip bombing, rockets, panel strafing and aerial gunnery. The fighter squadrons participated with each squadron fielding a 5-pilot team. Wing and Group Headquarters fielded a 5-pilot team as well. Top honors went to the 534th FDS which scored 1621.59 points. The 532nd FDS came in second with 1413.58 points and the 533rd FDS scored 1273.92 points. The Headquarters team scored 1072.57 points.

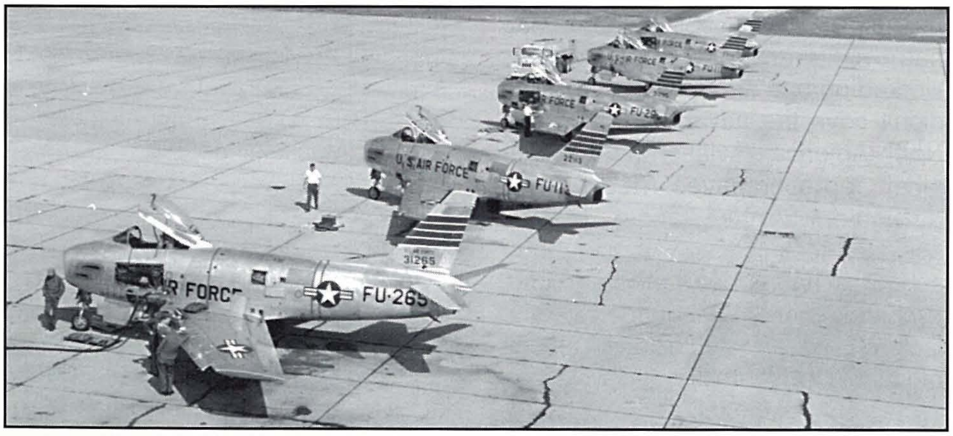
While at Eglin, 51 pilots were qualified in air-to-ground gunnery and 9 pilots qualified in air-to-air gunnery.

During the first half of 1957, the wing participated in several activities. 34 sorties were flown in support of the Seymour Johnson AFB Rededication Ceremony on 26 April. From 24 April through 7 May, five F-86H aircraft and their pilots were on TDY to Eglin AFB, FL, in support of a JCOC exercise there. Seven aircraft flew 2 sorties each in support of Armed Forces Day activities on 18 May. One aircraft was flown to England AFB, LA, for static display. Four sorties were flown on 10 April in support of Army calibration of AAC radio equipment at Fort Bragg, NC. Six sorties were flown to support Group Radar Calibration at Pope AFB, NC. Seven pilots on TDY from other 9th AF wings transitioned into the F-86H during the period.

July through December 1957 was a period of great activity for the wing. Now fully operational, the wing provided two Firepower Demonstrations in July, one in August, three in September and one in November. To these were added a number of fly-bys, ground radar calibration missions and air support missions in support of Army exercises.

The number of tactical aircraft assigned to the wing varied. 50 were assigned at the beginning of the period and a high of 65 aircraft was on hand in October. The wing's maintenance statistics reflected a significant improvement during the period, despite supply difficulties brought on by budget restrictions. Sending two-thirds of the aircraft through IRAN inspection process at Ontario, CA, helped greatly improve the overall maintenance situation.

In early October 1957, the wing was told it would make the transition from the F-86H to the newer F-100C Super Sabre. Sixteen of the wing's more experienced pilots received transition training at Foster AFB and at George AFB. The first F-100Cs



At left, 533rd flight line with 53-1265 in the foreground. At right, F-86H-10 undergoing maintenance with gun bay open. (Col H. Bomberger via Menard)

arrived in November. An F-100C simulator had arrived in October.

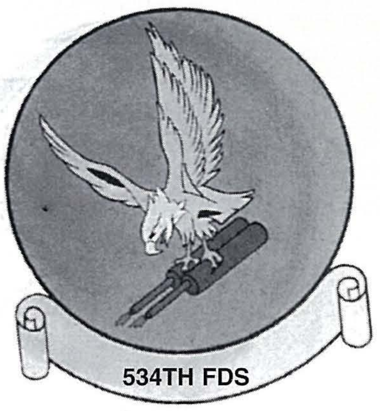
It's important to note that the wing also had been advised that its mission would be taken over shortly by the 4th Fighter Wing, a unit returning to the states from a long tour of duty in the Pacific. The 4th had served with honor in Korea and was assigned to Chitose AB, Japan, prior to its assignment to Seymour Johnson AFB.

The wing continued transitioning pilots into the F-86H and in October 21 pilots completed the transition. In November, continuation training for the pilots who had completed transition to the F-86H was central to the major portion of the wing's flying activity. These pilots, for the most part, were recent graduates of Flying School and needed a maximum amount of flying time, in the time available, to prepare them for the transition to the hotter F-100C.

Training didn't relieve the wing of its responsibilities to carry out other missions, and sometimes even the best efforts resulted in a letdown. Ten aircraft and fifteen aircrews went to Fort Bliss, TX, in November 1957 to prepare for a Firepower Demonstration. The team dutifully carried out a full rehearsal of the demonstration, only to have it cancelled on the 22nd. Ten aircraft and twelve aircrews were sent to Fort Sill, OK, to carry out a Standard Firepower Demonstration from 11 to 20 November.

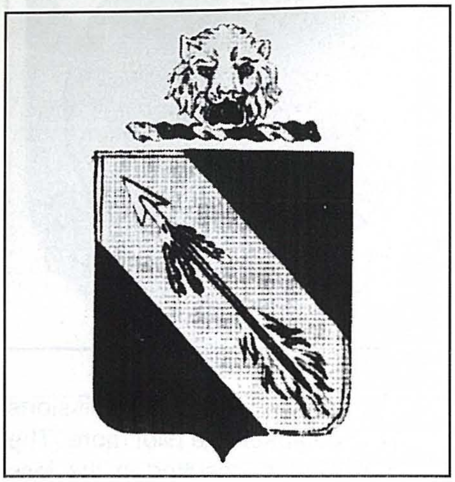
Two aircraft and crews were given a daily commitment to support the Army for a period of twelve days, between 7 and 21 November, as part of the wing's participation in TAC Mission 5-39 at Fort Bragg, NC.

By November, the wing had 79 F-86H pilots and 6 F-100C pilots. The transition process continued as thirteen F-86Hs were ferried to Niagara Falls, NY, for transfer to the Air National Guard. Meanwhile, eight pilots attended transition training to the F-100C at Foster AFB and an additional eight attended similar training at George AFB, CA. At home base, six pilots transitioned to the F-100C and two transitioned to the F-86H.



Three major accidents were recorded during this period. Two resulted in the pilots escaping without injury. The pilot involved in the third accident received major injuries. The first accident occurred on 13 August when F-86H 52-2108 crashed as a result of fuel starvation off of Deal Island, MD. The accident investigations revealed the pilot had become lost and attempts by ground personnel to assist him resulted in the radio being cluttered with transmissions that only confused the pilot more. The second accident resulted in the loss of F-86H-10 53-1391, when the pilot, attempting to land at Webb AFB, TX, landed 2,400 feet short of the runway. The major injury accident occured when F-86H-5 52-5752 was lost in California when the airplane flamed out during a go-around at San Francisco. Fuel starvation was stated as the cause of the accident.

To summarize, the 83rd FDW, though active at Seymour Johnson AFB for a relatively brief period, performed its assigned mission well. That it successfully initiated and carried out what it could, in the time remaining, its portion of the transition from the F-86H to the F-100C, while continuing to meet Ninth Air Force taskings, is commendable.

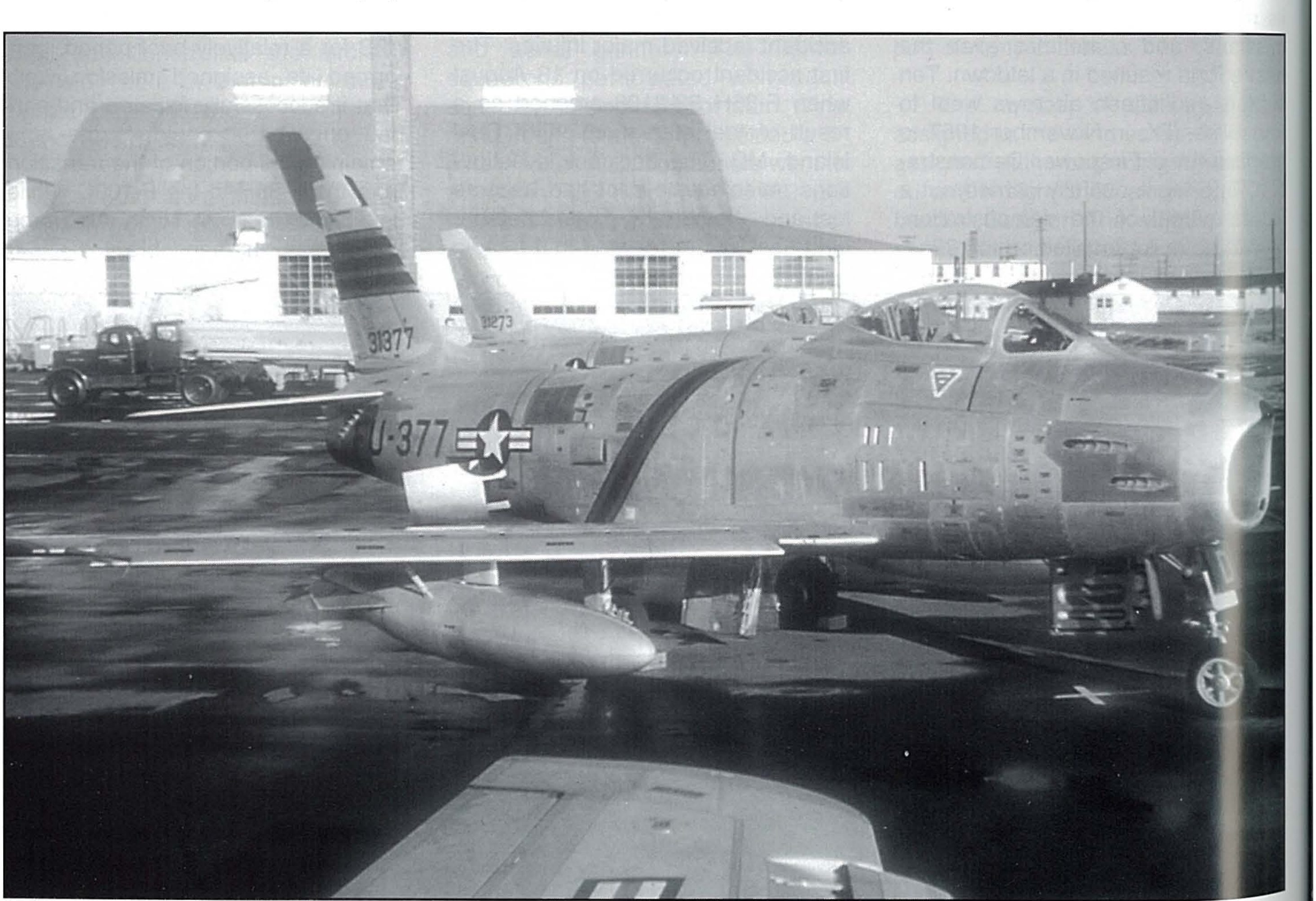


The brief history of the 4th FDW and the F-86H covers the period of 8 December 1957 through 30 June 1958. The 4th returned to CONUS and took over for the 83rd FDW at Seymour Johnson AFB. Because of this, claims have been made that the 4th flew the F-86H operationally, and in a roundabout way that could be said to be true. The wing did employ the airplane for upgrade training, something it would also do with airplanes it had an operational commitment to use. However, in the 4th, the F-86H was not used in a truly operational role. Its primary function with the wing was to serve as a plane with which new pilots could get vital upgrade training and build flying time (translates to experience) to prepare them for transition to the bigger, faster and more demanding F-100C.

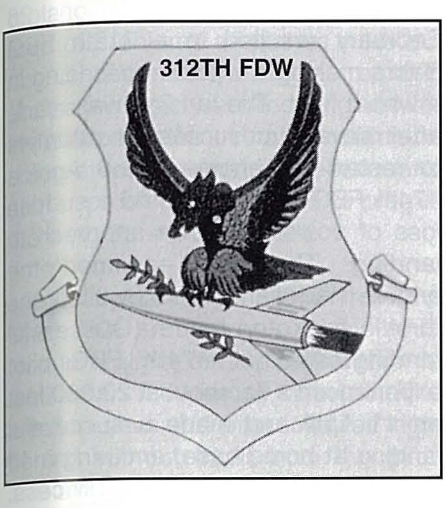
At the beginning of the aforementioned period, the wing still had a number of F-86Hs on hand. According to the unit historian's records, a total of 38 F-86Hs were on hand at the beginning of the period. How these were distributed between the wing's squadrons wasn't indicated. On the other hand, the planes didn't get used sporadically. Better than 798 hours were flown in the F-86H during the period and this was accomplished despite the rapidly dwindling number of planes available, due to transfer of these F-86s to various Air National Guard squadrons. One source states that an F-86H was lost during this period, although no official record of the loss was found.

Another source states that the wing painted some of the F-86Hs in distinctive colors, not entirely 4th FDW, but not entirely 83rd FDW either. No photographic evidence has been found to support this claim and it's more likely that they were left in the former 83rd FDW squadron colors, or were stripped of their unit colors altogether as part of the preparation for transition to the Air National Guard.

Below, F-86H-10 53-1377 was assigned to the 83rd FDW possibly retained temporarily as a 4th FDW training aircraft. (Col Hess Bomberger via Menard)



312th FIGHTER DAY WING



The 312th FBW and its 312th FBG were activated at Clovis AFB (later to be named Cannon AFB) on 1 October 1954. At the time the wing was activated at Clovis, the 388th FBW was also in place there. The 388th was in the process of deploying to France and the 312th was heavily tasked to help support this move. This tasking lasted for approximately two months. The 312th appears to have been activated at Clovis without aircraft with flying time coming from F-86Fs assigned to the 388th. The final elements of the 388th departed Clovis on 27 November.

The 474th FBG was attached to the 312th FBW on 22 December 1954. The group came from the Far East Air Force (FEAF) and its pilots were combat veterans. Its pilots were divided between itself and the 312th FBG and the vacancies within each group were filled with 312th pilots who didn't have combat experience. Thus, experience was spread through the two groups and the inexperienced pilots got the benefit of lessons learned from veterans, no matter which group they were assigned to.

By the end of December, 13 pilots of the 312th had started F-86H transition training. There were six qualified flight leaders in the group but no qualified squadron commanders or operations officers. Pilots who initially qualified on the F-86H were tasked to ferry the new machines from North American's Columbus, OH, plant. The 312th FBG at this point was composed of the 386th, 387th and 388th FBSs.

Getting the wing and its groups settled-in with the F-86H was complicated by the fact that the wing had been slated to receive the F-84F Thunderstreak. Apparently, the 322nd FDG at Foster AFB, TX, had initially been programmed to receive the F-86H. When aircraft assignments got changed, the 312th was tasked to transfer F-84 related equipment to Alexandria AFB, LA, and the 322nd was likewise tasked to send F-86H related items to Clovis AFB. As might be expected, the 312th suffered initially from a lack of equipment and supplies and a lack of qualified maintenance personnel. Nevertheless, the wing worked hard, improvised where it had to and maintained a high morale. By the end of the reporting period, 34 F-86Hs were on hand. All were Block 1 airplanes with .50 caliber machine guns.

An early problem that complicated the maintenance situations at Clovis was the availability of different versions of the J73 engine. The engines weren't interchangeable, and the planes had to be modified before the later versions of the engine could be installed. The modifications required 100 man-hours per airplane to accomplish. Problems with timely delivery of replacement engines would cause 14 of the new jets to be put into extended storage after February 1955.

The Special Weapons Section of Wing Operations was established on 14 March 1955. Lack of materials and lack of trained personnel hampered its progress.

The accident rate during this period was 25 more per 100,000 flying hours than the TAC average. The crux of the problem was a lack of flying hours for the pilots. 20 hours per month was needed to maintain pilot proficiency, but pilots were only getting between 8 to 10 hours per month. A vigorous flying safety program was implemented to correct the problem.

The airplane had teething problems. A limit on how high the airplane could be flown (20,000 ft) was imposed as a result of canopy losses at altitude during the month of February. The limitations lasted three weeks. Inspection of aircraft showed no defects, however, and the limitation was removed. Initially, periodic inspections of the F-86H were conducted at 25 hour intervals. A periodic inspection is a thorough inspection of the airplane and can take several days. Having to do this kind of inspection, after only 25 hours of flying, puts a heavy demand on the inspection section and the specialist flights. A conference was held at George AFB with representatives from the Tactical Air Command, the Air Material Command, General Electric and North American present. The inspection interval was raised to 50 hours and that took a significant load off the maintainors. By March 1955, the engine removal time had increased to a 75 hour interval, meaning the engine had to be removed after 75 hours of operation. Modern jet engines come out of the airplane after a substantially higher number of hours.

Authors note: As a maintenance technician in the USAF in the '70s and '80s, I was involved with such inspections. By that time, the inspection interval for most planes had been raised to 100 hours.

By January 1955, the 386th FBS had received 18 F-86Hs and by the first week of March had its full compliment of 25 of the new airplanes. The squadron flew over 269 hours in the F-86H during May and 477 hours in the plane in June.

By May 1955, the 387th FBS had 12 pilots fully transitioned into the F-86H, but morale was low because the pilots could only get just over 6 hours per month in the aircraft. Proficiency suffered as a result. Also in May more troubles developed. A starter unit blew up on one of the Sabres and the wing's fleet was grounded for inspection of the units. Not long after, it was discovered that fuel gages were failing and the aircraft were grounded again. In spite of this, the 387th FBS managed to fly over 461 hours during the month.

The 388th FBS accumulated 291 hours in the F-86H during January and February 1955. The squadron had difficulties receiving assistance from instructor pilots because most of them were involved in ferrying new airplanes to the base. By March, 29 of 39 pilots in the squadron checked out in the F-86H. By March, the squadron's pilots had accumulated 118 hours in the F-86H and in April they added another 320 hours in the airplane.

All of the wing's F-86Hs were grounded for two weeks in March for modification of ejection seats. The modification process was complicated by the slow arrival of necessary kits and the discovery that some kit components were faulty. Maintenance problems continued and resolving them was hampered by a shortage of hangar and ramp space. The wing had been receiving Block 1 aircraft, but the 474th FBG received new Block 5 aircraft with 20mm guns, thus complicating maintenance and training for the wing further by having two types of armament systems.

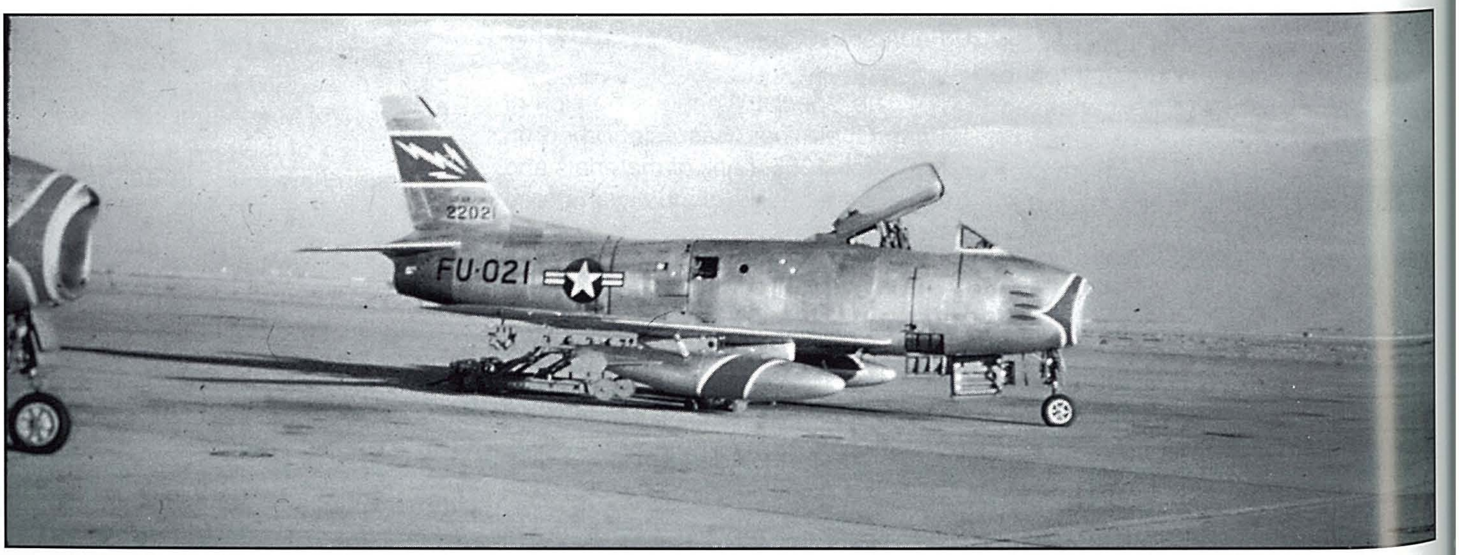
EARLY 1955 ACCIDENTS:

One major accident was recorded on a 312th FBG aircraft in January 1955 when a nose gear door panel came off in flight, damaging the bottom of the left wing. A wing change was required. Another nose gear door was lost in February, again from a 312th FBG Sabre. The left wing leading edge was slightly damaged. Pilots were then instructed to lower the landing gear at 20 knots below the speed quoted in the pilot's handbook. The nose gear door problem continued on 1 March when a 474th FBG F-86H lost yet another door in flight, damaging the leading edge of the left wing and hitting connections to the left wing external fuel tank. Post accident examination revealed the door hinge had been cracked on an earlier flight. Over-tight door actuator linkage were found on some aircraft and adjustments made. Landing gear cycling speed was reduced once again, this time to a maximum of 200 knots. In April, a 312th FBG Sabre lost the nose gear door when the pilot exceeded gear extension speed limitations set because of previous nose gear losses. The aircraft received damage to the left wing leading edge, left drop tank and associated pylon. A nose gear door hinge broke on 13 April, but the 474th FBG Sabre didn't suffer a nose gear door loss. All Sabres in the group were inspected.

An engine flameout on 28 February resulted in a 312th FBG Sabre making a wheels-up landing in a wheat field. The landing was made after several unsuccessful attempts to restart the engine. On 8 April a 474th FBG F-86H suffered a sudden loss of power while on approach to landing. The pilot assumed the engine had flamed out, pulled the throttle back and made a successful landing. Another 474th FBG pilot experienced a flameout at 20,000 feet on 11 April and made a successful landing at home base, enduring a 40 knot crosswind in the process. Another engine-induced incident occurred on 14 April when a 312th FBG F-86H, returning to home base on a cross-country flight, lost all its engine oil. The pilot successfully landed at Clovis. Excellent pilot flying skills saved the aircraft on 16 April when a 312th FBG Sabre flamed out at 40,000 feet. After five unsuccessful attempts to restart the engine, the pilot glided the plane to a safe landing at Clovis.

On 30 April, a 474th FBG Sabre caught fire during engine start. Flames poured from the air intake and engine exhaust and the best effort of base fire fighters couldn't bring the fire under control. The plane was nearly completely destroyed. Preliminary investigation pointed to a possible starter disintegration. The problems with the engine starters caused a two-day lapse in flying, dur-

Below, 386th FBS F-86H-1 52-2021 had red trim on the nose, tail, wings and drop tanks outlined in white. The squadron also featured white lightning bolts on the tail. (via Menard)



ing May, while the wing's Sabres were inspected. A shortage of replacement starters created a multitude of problems as planes were put out of commission. Engine buildup (preparing newly arrived engines for installation in the aircraft) couldn't be completed. Engine flameouts and starter problems continued to plague the wing during the month.

On 8 March, an F-86H from the 312th FBG, returning to Clovis AFB, was in a slight turn in preparation to land when the canopy blew off. The ejection seat and pilot followed right behind without input from the pilot. The airplane crashed near Nazareth, TX, approximately 60 nautical miles from the base. The pilot landed on base after his parachute opened approximately 800 feet above the ground. He wasn't seriously injured and all F-86Hs on base were grounded for corrective action. On 28 March, a 474th FBG plane suffered a canopy loss in flight. Post accident investigation revealed the canopy was locked prior to takeoff. The leading edge of the vertical stabilizer was damaged. Various mechanical deficencies were noted as having caused the accident. All F-86Hs were officially grounded on 11 March because of faulty ejection seats. Whether the airplane mentioned in the 28 March incident had been inspected isn't clear.

25 March saw a main gear tire blow out on landing when a 474th FBG pilot inadvertently applied brake pressure while applying rudder during a cross wind landing. A similar incident, involving another 474th FBG pilot and aircraft, occurred the following day. Both pilots were on checkout flights.

On 5 April, a 312th FBG Sabre lost a 200 gallon external fuel tank in flight. The pilot had no idea when and where the tank came off the plane.

On 28 April, a pilot from the 312th FBG experienced a low speed accelerated stall at 150 knots while turning on final approach to landing. The plane yawed right and left and the left main landing gear and left external tank hit the runway. The tank was torn from the plane with resulting damage to the left wing, flap and aileron.

EXERCISE SAGEBRUSH:

On 18 July 1955, the wing was notified that it would participate in an exercise named "Sagebrush". All six of the wing's F-86H squadrons would be involved. Pre-planning the wing's participation in the exercise involved taking two major activities into consideration.

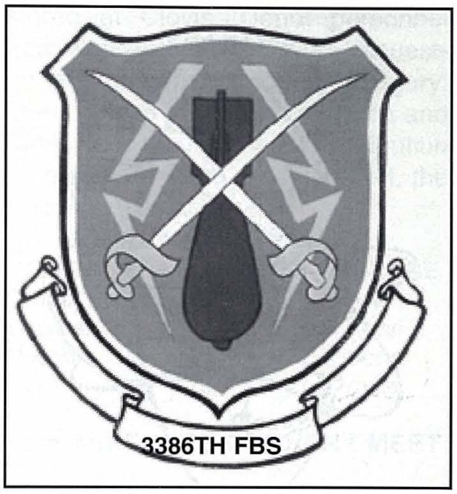
The first activity was an operation called "Tool Box". The operation began in April 1955 and continued through December. The operation was designed to increase the maintenance capability of the wing. One squadron, the 388th FBS, was relieved of all operational commitments. Its aircrews and aircraft were divided between the other two squadrons of the 312th FBG. The 388th then assumed responsibility for aircraft storage and conducting ground school. The remaining five operational squadrons provided students and storage aircraft to supplement the 388th. The operational squadrons were left with 16 fighters per squadron and the wing had five operational squadrons.

The second activity was the operational suitability test of the F-86H/Mk.12 weapons system. The 474th FBG's 428th FBS was committed to this test and thus couldn't be utilized for the exercise.

The Ninth AF was advised that the 312th FBW could provide only four operational squadrons for the exercise. Ninth AF in turn advised the wing, on 2 September 1955, that Clovis AFB would be a rear support base for F-86H aircraft. The wing's four operational squadrons would be deployed as follows during the exercise:

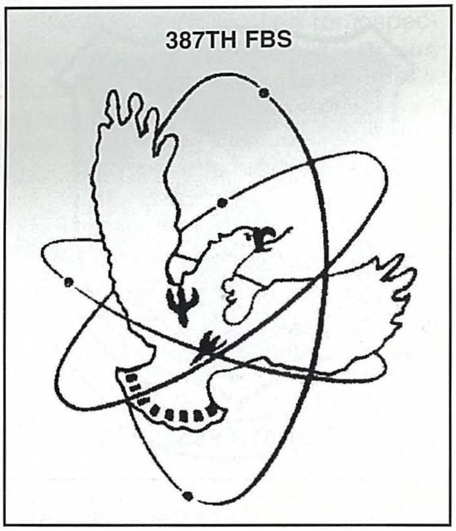
386th FBS at Bryan AFB
387th FBS at Bryan AFB
429th FBS at Foster AFB
430th FBS at Foster AFB

Ninth AF called a meeting, held at Shaw AFB, SC, on 27 September and during the meeting the 429th and 430th FBSs were advised to plan on using Bergstrom AFB as their deployment site. On the 28th the wing received a visit from the Joint Air-Ground indoctrination Team from the Air-Ground Operations School at Southern Pines, SC. Some 300 officers and airmen attended the indoctrination and gained useful insight into air-ground operations.



Meanwhile, on 8 September, the commander of the 21st FDS, from the 413th DFG, 479th FDW, visited Clovis AFB and made arrangements for his squadron to operate from Clovis during the exercise. The 21st would be the only squadron outside of the wing's F-86H squadrons, to operate from Clovis during the exercise.

Phase I of the exercise was conducted from 25 October through 7 November and entailed movement of the four squadrons to their assigned operational bases. Phase II of the exercise was conducted from 8 November through 14 November and was identified as a Command Post Exercise (CPX). Phase III of the exercise brought the opening of air activity and the mock battle between the aggressor and ground forces. This phase was conducted between 16 through 21 November. Nuclear and chemical warfare engagements were simulated, but the historical records don't indicate whether live conventional weapons were actually expended during the exercise. The simulated use of nuclear weapons contributed to the aggressor force's, of which the



312th FBW squadrons were a part, success in this phase of the exercise. Quoting from the historian's report:

> **"Aggressor tactics, involving the 312th FBW, during this Phase acted in such operations as jamming U.S. radar sites. These tactics proved successful and were supplemental as aggressor aircraft flew low-level attack formations after radar jamming had been accomplished. By noon of the second day of this Phase, Aggressor Air Forces had destroyed 50% of the United States Air Forces, and approximately 80% of the U.S. bases utilized as aggressor targets suffered a similar fate. At least eighteen U.S. bases of operations were either completely wiped out or so seriously crippled as to render them useless. It was obvious that aggressor tactics considered this wide-scale annihilation of U.S. installations the most expeditious and profitable manner in which to achieve their purposes. The act of catching most of the USAF on the ground very nearly accomplished this.**
>
> **The initial crippling blow to the USAF proved even more advantageous as the phase continued. Little or no resistance was encountered in the field of air combat or interception. U.S. retaliatory measures were almost negative."**

In addition to USAF losses, the aggressor forces wreaked havoc on U.S. ground forces. The historian's account states:

> **"Joint operations between ground forces (Aggressor 9th Field Army) and aggressor air power (which included units of the 312th FBW) proved successful, if not devastating, to U.S. ground defense forces. Air supporting power supplemented its capability through the use of nuclear weapons of small KT (kiloton) yield. These atomic munitions were utilized even in close ground support, and in one instance wiped out a ground force (U.S.) that have been pocketed by a pincer movement accomplished by the aggressor ground forces."**

Phase IV ran from 21 through 29 November. Combat air activity was non-existent and only local and training flights were conducted. A six day "cease fire" was called during this phase and was utilized, in part, to critique operational results up to that point of the exercise.

Phase V began on the 29th. A critique held at Lake Charles resulted in the decision to move two-thirds of the 312th FBG aircraft involved in the exercise to Gray AFB, putting them outside of the range of tactical missiles being employed by U.S. forces. The remainder of the 312th FBG remained at Bryan AFB.

U.S. forces replenished their units with men and equipment and rallied, striking hard at aggressor forces. Communications problems on the aggressor side hampered their ability to function effectively. Decision reversals on the part of exercise "umpires" added confusion. Large numbers of aggressor installations were put out of the war for from 80 to 120 hours. Aggressor forces retaliated over the next few days, and several U.S. bases suffered from aggressor strikes. U.S. forces used nuclear guided missile strikes against aggressor forces. The war ended on 3 December.

Phase VI of the exercise involved critiquing the operations and returning involved units to their home stations.

FLYING SAFETY
July through December 1955

Frequent nose gear door losses resulted in grounding of all F-86H aircraft from 2 through 20 July. Technical Order 1F-86H-571 brought about installation of stronger aft hinges for the doors and the problem was solved.

on 19 August, 53-2029 suffered damage to the nose section of the airplane when a loose rear gun mount, on the lower left side gun, caused projectiles to deviate from their normal path. Repair costs weren't reported in the historian's account.

The wing's acting commander was killed in 52-2082 during an attempted post-flameout landing near Wendover AFB, UT. The accident occurred on 20 August.

On the 23rd, 53-1318 landed short of the runway, causing a sheared nose gear and substantial damage to both wings. The cause of this accident was pilot error.

F-86H 52-2053 caught fire in the de-arming area at the end of the runway on 24 August as a result of a shorted generator lead. The airplane wasn't totaled but an estimated $1,800.00 was needed for repairs.

On 30 September, 52-2077 flamed out during a local flight and crashed when the pilot could not successfully restart the engine. He ejected at an altitude of 4,000 feet near Dimmit, TX. The exact cause of the accident couldn't be determined but it was suspected material failure was the major contributor.

Happily, October and November brought no additional accidents, but in December, one of the wing's F-86Hs flamed out and crashed 800 feet short of the runway at Gray AFB, TX. The accident was attributed principally to pilot error with material failure identified as contributing factors. Fate of the pilot wasn't reported.

ARMAMENT CONCERNS
July through December 1955

Problems with cartridge ejection chutes for the upper 20mm cannons on the 474th's Sabres resulted in a Safety of Flight Supplement being received which restricted firing of the affected guns until the chutes were removed, inspected, tested and modified. The chutes were removed and shipped in batches to the Pontiac Company for modification.

The need for modifications to the noses of some of the wing's aircraft (stiffening that section of the aircraft) restricted use of these aircraft. 53 of the wing's Sabres were restricted from firing guns at indicated airspeeds under 425 knots due to gun bay gas purging problems.

During October, nuclear weapons were classified as the primary offensive weapon the wing would use in the event of war. Previously, these had been classed as secondary weapons, emphasis being placed on the use of conventional bombs.

PROJECT TOOL BOX

A lack of maintenance personnel and further lack of experience among those on hand led, in July 1955, to implementation of Project Tool Box. The aim was to reduce the maintainers' work load while getting maximum utilization of flyable aircraft. Under the program, some of the wing's aircraft would be placed in flyable temporary storage. Other aircraft would go into a longer period of storage. A third group of aircraft would go into a longer period of storage and would have engines removed but would otherwise be complete. Cannibalization of parts from either group of stored aircraft was prohibited and the aircraft could be released from storage only on the wing commander's approval. The supply squadron would be responsible for the stored aircraft. To facilitate storage of the affected aircraft, the 388th FBS was redesignated the 388th Storage Squadron.

TRANSFER OF BLOCK 1 AIRCRAFT

In late October, the wing received word that all F-86H-1 aircraft would be transferred to the Air Training Command. The wing recognized that these aircraft had not received modifications, as spelled out in specific technical orders, during the summer because of demands brought on by Project Tool Box. ATC, on the other hand, could not accept the planes before the technical orders had been complied with. It wasn't until December that the decision was made to prepare a total of 73 Block 1 Sabres for transfer and storage. 59 were to be transferred, after modification, while the remainder would be stored at Clovis. Depot personnel from San Antonio, TX, were requested and began arriving in January. More arrived in February, March and April. As a result of their contribution to the transfer and storage effort, the following was achieved:

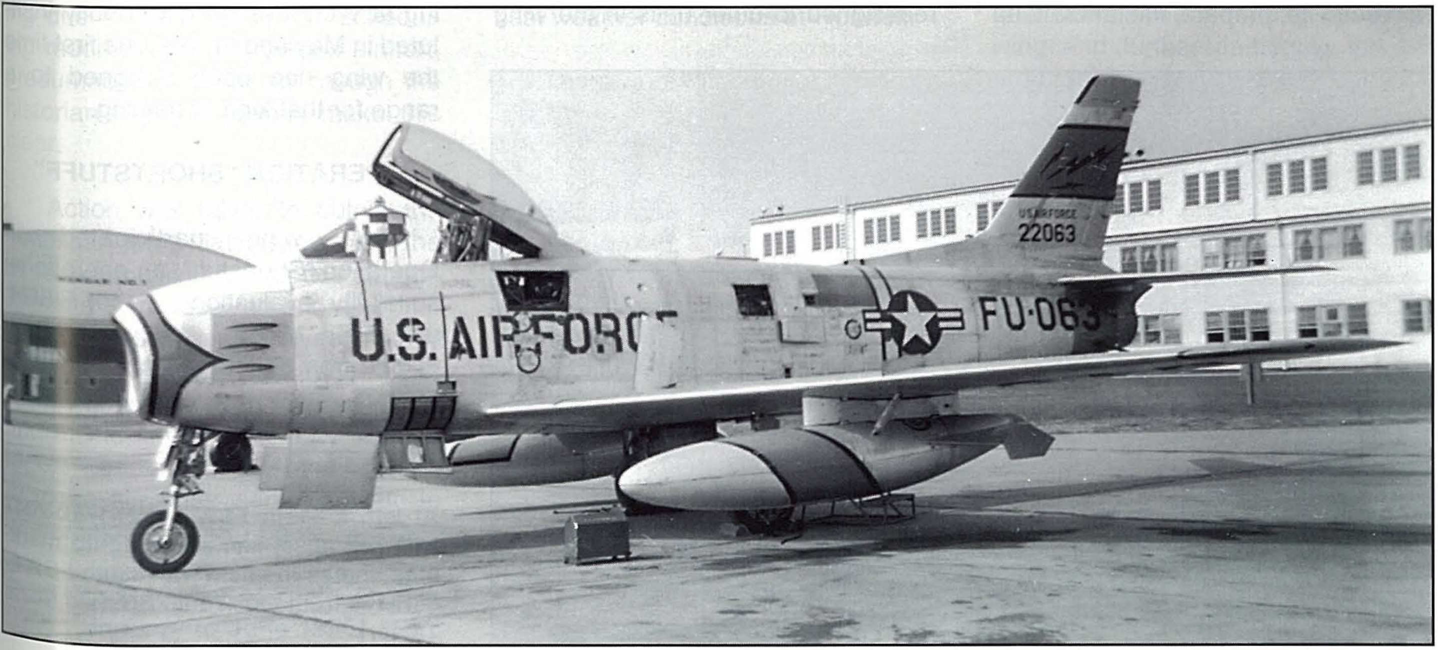
MONTH	TRANSFERRED	STORAGE
January	10	18
February	15	none
March	15	none
April	19	none

9th AIR FORCE GUNNERY MEET

Five F-86Hs from the 386th FBS participated in the 9th AF Gunnery Meet held at Wendover AFB, UT, from 14 to 21 August. The unit's standing at the end of the meet wasn't recorded in the historian's records.

386th FBS ACHIEVEMENTS
July through December 1955

In addition to the participation in the gunnery meet mentioned above, the pilots of the 386th racked up other achievements. In November, the unit flew a total of 590:30 hours, sixty over the requirement for the month. During the last four months of the period, the squadron met all flying time and squadron mission time commitments. By 31 December, the squadron had amassed 2,900 accident free flying hours.



Below, 388th FBS F-86H-1 52-2063 at Scott AFB on 20 August 1955. Aircraft was trimmed in green outlined in black on the nose, tail, wings and drop tanks. The tail stripe also sported black lightning bolts. (David Ostrowski via Menard)

387th FBS ACHIEVEMENTS
July through December 1955

The 387th participated in a Firepower Demonstration at Fort Benning, GA, from the 10 through 19 October. Participation in Operation "Sagebrush" limited the unit's ability to conduct training. After the exercise was over, pilot qualification in Special Weapons delivery took a high priority. September and October were difficult months for the squadron, so far as maintenance was concerned. The month of September began with 11 aircraft out of commission pending completion of periodic inspections. By 21 October, the squadron had a 70% in-commission rate and was meeting its monthly flying time goal. Nevertheless, the squadron had eight aircraft out of commission. Engine and related supply problems were the principal reasons.

388th FBS ACHIEVEMENTS
July through December 1955

The squadron became a Training and Storage Squadron, as a result of Operation "Toolbox", on 21 July and remained such until late October. After that, the squadron once again became an operational fighter squadron and assumed a primary mission of special weapons delivery. With most of the 5-skill level maintenance personnel assigned to the other two squadrons of the 312th FBG, only enough qualified personnel remained to prepare the aircraft for storage and conduct training.

For operations purposes, the squadron's pilots were split between the two remaining operational squadrons in the group and continued their training there. However, once the 388th became an operational squadron again, its mission changed and emphasis was placed on employment of special weapons and the techniques used to deliver them.

The squadron performed well, all things considered, in December. Just over 404 hours were flown with an average aircraft in-commission rate of 74.1%. The squadron had eight bomb rack malfunctions during training sorties in December, as compared to 20% of gunnery missions in November being recorded as unsuccessful due to bomb rack malfunctions and spotting charge (from the practice bombs) failures.

OTHER WING OPERATIONS
January to June 1956

The 430th FBS (covered under the 474th FBG) was notified in late December that it would make a temporary movement to an overseas location. Preparation for this deployment affected the entire wing. Personnel had to be reassigned to meet availability requirements. Those with enough time remaining on their enlistments remained with the squadron while those who didn't were reassigned to other units in the wing and replaced with personnel who met the retainability requirements. The shifting of personnel resulted in the 430th being ready for deployment by 20 January as far as manning was concerned. The unit left CONUS on 3 April and the wing repeated the personnel shuffling to prepare the 429th FBS to relieve the 430th at the appointed time.

To meet the wing's operational needs, in light of the special weapons mission, Standardization Boards were established within the groups and at wing level as well, with pilots receiving Standard Operating Procedures Handbooks as part of this process.

Inclement weather plagued the wing during the first four months of the period, hampering training. Flight safety was affected and dust storms severely hampered maintenance.

Twelve aircraft deployed for Fort Bliss for a firepower demonstration flown on 24 February. Thirteen aircraft had deployed to Fort Sill, OK, in January for a series of firepower demonstrations there. March and April brought more firepower demonstrations. Fort Sill was the site of the March demonstration and Fort Knox, KY, for the April demonstration. During this period the wing sent five aircraft to Wendover AFB to participate in Phase IV testing of the Dart aerial target. Air-to-air gunnery training at Wendover AFB was fully instituted in May and marked the first time the wing had been assigned to a range for that kind of training.

OPERATION "SHORTSTUFF"

The wing participated in Operation "Shortstuff", an operational suitability evaluation of the F-86H, using the Mk. 12 special weapon. Flights from Eglin Auxiliary Field No.

At left, a 312th FBW F-86H-1 52-2047 with red nose, tail, and wing-tip markings shares the field with 430th FBS F-86H-10s from the 474th FBG. (via Norm Taylor)

3 were conducted during the first part of the testing. The Mk. 12 was carried during these tests to subject it to high G forces, temperature and altitude changes and other conditions. The idea was to determine how well the weapon would stand up under various stressful conditions. In later tests in April, a number of T-66 "shapes", representing Mk. 12 weapons, were dropped to determine how accurately pilots could deliver the weapons on target, suitability of aircraft systems and to evaluate weapon ballistics. The April tests were completed on the 25th. Tests continued through 20 June when the F-86Hs were grounded as a result of engine inlet guide vane failures. The final T-66 drop had been made on 5 June.

In January 1956, 14 Block 1 F-86Hs were transferred to Davis-Monthan AFB, Tucson, AZ. 59 Block 1s were transferred to Nellis AFB, NV.

WING SLAT MODIFICATION

During the time the 430th FBS was preparing for its overseas deployment, kits were received to modify the 27 F-86Hs the squadron had in its possession. A decision was made to take only 18 of the 27 planes on the deployment, with the result that the remaining modified airplanes were distributed to the other two fighter squadrons in the group. This resulted in a safety of flight issue arising due to complications in scheduling modified and unmodified aircraft, presumably for missions, though the historian's record doesn't make this clear.

Action was taken to obtain the necessary wing slat kits to modify the 474th's remaining non-slatted aircraft. The kits were received and all of the group's F-86Hs had been modified by 15 June. Kits also were received to modify all of the 312th FBG's F-86Hs and at the time the January to June report was written, the modifications to those airplanes were expected to be completed by 15 August.

FLIGHT SAFETY
January to June 1956

The first half of 1956 brought an increase in the number of accidents the wing suffered, compared to the previous reporting period. Human error and material failures were major contributors to the accidents.

On 19 January, the pilot of 53-1332 was killed when his aircraft struck the ground at the bottom of a split-S maneuver that had been started at an altitude of 3,500 feet. The accident, which took place near Tucumcari, NM, was determined to be a result of pilot error as the maneuver was started at too low an altitude.

On 18 February, the pilot of 53-1256 was forced to eject from his aircraft in the landing pattern at Clovis AFB when his engine failed. The pilot successfully escaped and suffered no major injuries.

27 March saw the loss of F-86H 53-1311 during attempts to land at Walker AFB, Roswell, NM. The pilot made two unsuccessful attempts at landing the plane during a dust storm but visibility was so limited he couldn't find the runway. He ejected, most likely due to fuel starvation. The landing attempts were made as visibility reportedly dropped from 15 miles to one half mile while the plane was in the traffic pattern. Whether the pilot was injured wasn't reported. Cause of the accident was a failure of the Air Weather Service to adequately forecast weather conditions at Roswell.

There were three major accidents in May. On 8 May, 52-2112 was destroyed when the pilot was forced to eject from the aircraft due to fuel starvation. The pilot was flying as number two in a three-plane formation which was returning to Clovis AFB. Malfunctioning or misused radio aids, combined with blowing dust, prevented the flight leader from visually identifying Clovis AFB with the result that the number two plane ran out of fuel and crashed.

53-1267 crashed, on 26 May, and the pilot was killed during a firepower demonstration at Dona Ana Range, TX. The mission had staged out of Biggs AFB, El Paso, TX. The pilot was executing a high angle rocket run and attempted to pull out of the dive at too low an altitude.

388TH FBS

53-1266 sustained major damage at Toul, France. The pilot was attempting to land in rainy conditions and touched down 1,500 feet from the end of the runway, with speed brakes retracted. A wet runway made braking somewhat ineffective and the pilot stopcocked the throttle approximately 2,000 feet from the arresting barrier. Believing he could remain on the runway, the pilot didn't jettison the external fuel tanks. This resulted in the aircraft not being able to successfully engage the barrier. The nose gear engaged with the cable and the Sabre turned right, shearing the left landing gear downlock pin, damaging the left wing and further damaging the left drop tank.

On 1 June, 52-2114 from the 387th FBS crashed approximately two miles east of Clovis. No witnesses were found to help determine the cause of the crash and although the pilot ejected, he did not separate from the seat and was subsequently killed on impact with the ground.

On 15 June, 53-1336 from the 388th FBS crashed while returning to Clovis from the Melrose Gunnery Range. The airplane suffered engine power failure while over the range and the pilot attempted to make an immediate return to the base. Due to insufficient engine power, the pilot ejected from the plane. Ejection was initiated at an altitude of 700 feet, too low for successful operation of the seat. The historian's record implyies that the pilot was killed. The cause of the accident was traced to the number 1 inlet guide vane shaft which caused the engine inlet guide vanes to go to the full-closed position. As a result of this accident, all F-86Hs were grounded pending installation of a manual stop which would prevent guide vane closure.

SIGNIFICANT EVENTS January to June 1956

The 387th FBS participated in TAC Mission #712 at the Infantry School, Fort Benning, GA, on 11 May. Fifteen F-86Hs and crews were provided for the fire power demonstration, conducted before 2,000 officers from the Infantry School and other schools at Fort Benning. The demonstration consisted of dive bombing, rocket firing and use of napalm.

The 386th and 387th FBS participated in TAC Mission #710 at Fort Bliss, TX. The mission was for the benefit of some 8,000 students, post personnel and local civilians. Sadly, the final demonstration was brought to an abrupt end when an F-86H conducting a rocket firing demonstration flew into the ground, killing the pilot and completely destroying the airplane.

During May and June the 312th and 474th FBGs utilized the air-to-air gunnery range at Wendover, UT. During this period teams competing in the 9th AF Gunnery Competition, which was to be held in August, also were utilizing the Wendover facilities.

SPECIAL WEAPONS STANDARDIZATION AND CAPABILITY INSPECTION

The inspection began on 16 April and the 312th's three squadrons participated, flying 52 sorties on 23 April. Purpose of the inspection was to determine aircraft characteristics while carrying the T66 weapon when the aircraft was equipped with external fuel tanks and when it wasn't. The maneuver was conducted as if under actual combat conditions. 83 navigation, 119 bombing and 38 night formation sorties were flown. Nine of the sorties were deemed ineffective due to various mechanical malfunctions. Aircraft in-commission rates during the inspection were high, an average of 43 of the 58 F-86Hs assigned were available for daily sorties.

Authors Note: The June through December 1956 historical records for the 312th FBG remain classified and the gaps are filled-in using information contained in the January through June 1957 records.

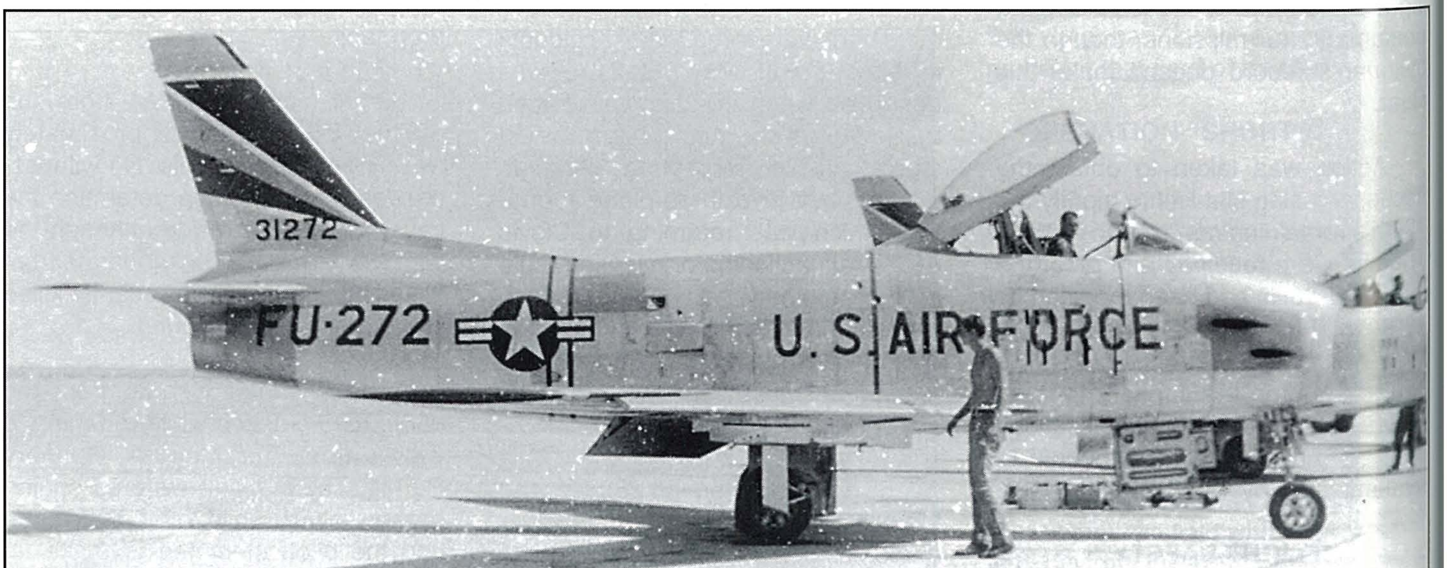
The 312th FBW received notification on 18 June 1956 that it was to convert to the F-100D Super Sabre. By January 1957, the wing had 15% of its aircrews transitioned to the F-100D and deemed operationally ready. By June 70% of the aircrews were operationally ready.

Apparently, the transition didn't go as smoothly as would have been desired. Newly-assigned crews weren't able to complete transition to the new Super Sabre by the end of December, due to aircraft grounding and a higher average TDY rate. All F-86H aircraft were grounded for a time during the first half of 1957 for inspection and replacement of screws associated with the engine starter unit. Nevertheless, the wing transferred its last F-86H to Seymour Johnson AFB on 20 March 1957.

The transition period wasn't without its F-86H associated incidents. On 1 February 1957, 52-5736 lost a T-66 training round (nuclear shape) in flight. The cause of the loss wasn't determined.

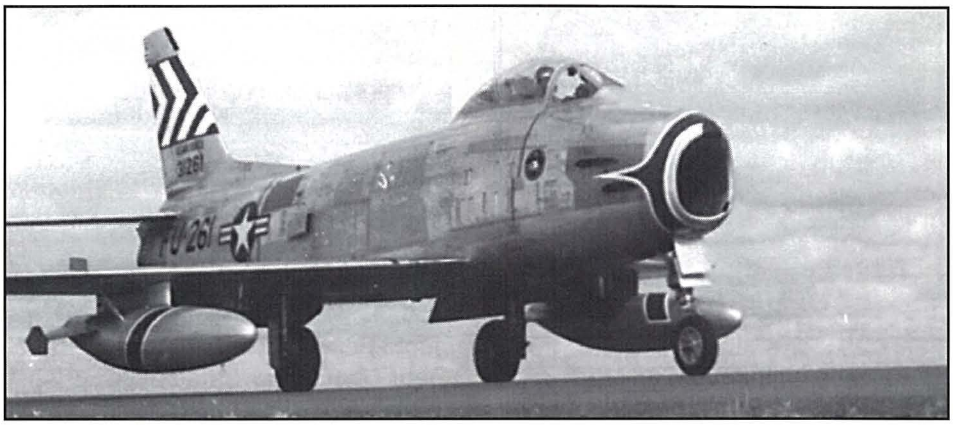
The 312th also provided F-86H transition training for pilots assigned to the 1708th Ferrying Group.

Below, 312th FBW senior officer's or "Honcho" markings on F-86H-10 53-1272. Tail markings were top-to-bottom red, yellow and green outlined in white. (via Dave Menard)



474th FIGHTER BOMB GROUP

428TH FBS



Above, 426th FBS Sabres were trimed with blue and white. Note squadron insignia aft of the gun ports. (USAF) Below, 429th FBS aircraft were trimed in yellow and black. Aircraft was at Clovis AFB. (NAA)

The 474th FBG was returned to CONUS from its assignment in South Korea in December 1954. The unit came back minus aircraft to Clovis AFB where they anticipated the receipt of new F-86H Sabres.

Almost immediately the group began losing key personnel, notably executive officers and some pilots. Temporarily, rated pilots were put to work filling-in some of these slots. Maintenance suffered in that there was an abundance of 3 skill level technicians (low experience level) but not enough 5 skill level (skilled technicians) and 7 skill level (highly skilled and able to supervise) technicians to allow quality maintenance to be performed in a timely manner. Compounding the group's maintenance problems was the fact that, in Korea, the group had been equipped with straight-wing F-84G Thunderjets and most of the maintenance personnel had no experience with the F-86. Those who were familiar with the Sabre were few in number and of those, no one had any useful knowledge about the F-86H.

Transition of the pilots into the new F-86H was conducted in an orderly manner. With one pilot checked out as an instructor pilot, the group utilized January and February 1955 to check Flight Commanders and Operation Officers out in the new airplane and get them trained to perform flight instructor duties. The effort was hampered by aircraft maintenance problems and associated support function difficulties. By the end of February, 10 pilots were checked out and functioning as instructor pilots while another 35 pilots were in the final stages of the transition program. None of the pilots had reached a level of proficiency where they were unrestricted regarding participation in group missions.

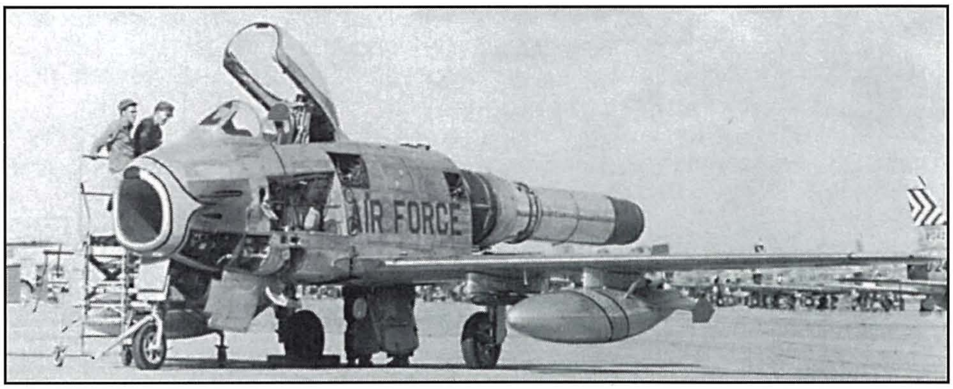
The end of March saw 56 pilots still in transition to the F-86H. Instructor pilots numbered 17. Progress was hampered by the grounding of the F-86H fleet from 8 March until nearly the end of the month. Canopy and ejection seat problems brought about the grounding order.

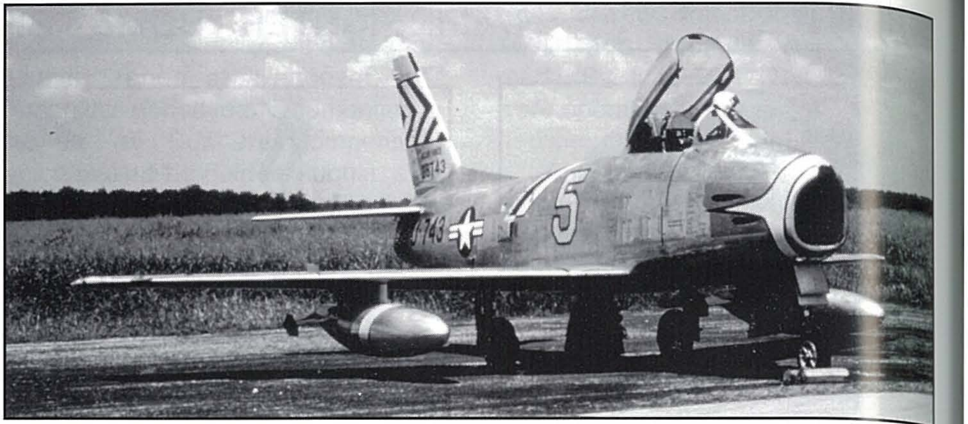
January through March was devoted to checkout of pilots in the F-86H and that included at least three trips in T-33s assigned to the group before the pilots made their first flight in the Sabre. With this period behind the group, the next step was to train the pilots to perform the assigned tactical missions with their new aircraft.

Training in April, May and June was hampered by a variety of problems. The Sabres were grounded for two days in May due to engine starter malfunctions. Landing gear brake drag on takeoff was noted in a series of incidents, causing another grounding in June. The Sabres were again grounded in June until engines could be replaced.

Accidents took their toll on the group. An F-86H landed 2,000 feet short of the runway on 6 April, resulting in damage to the nose gear, flaps and drop tanks. Another Sabre suffered a landing gear collapse during landing rollout, resulting in a wing and landing gear change. Another Sabre made a hard landing short of the runway on 28 April.

Things didn't get better in May. A





Sabre pilot experienced high speed rudder "buzz" on 3 May, and lost the rudder in flight. He successfully recovered at Clovis. Another Sabre was totally destroyed when it stalled during takeoff, on 12 May. The pilot suffered major injuries.

On 14 June, a Sabre pilot aborted his takeoff and the landing gear collapsed when the aircraft went into the overrun. The plane caught fire and was destroyed. Happily, the pilot got out and wasn't injured. Another incident of a Sabre stalling during takeoff had tragic results. The plane stalled during takeoff and the pilot was killed. The airplane was totally destroyed during the 17 June accident.

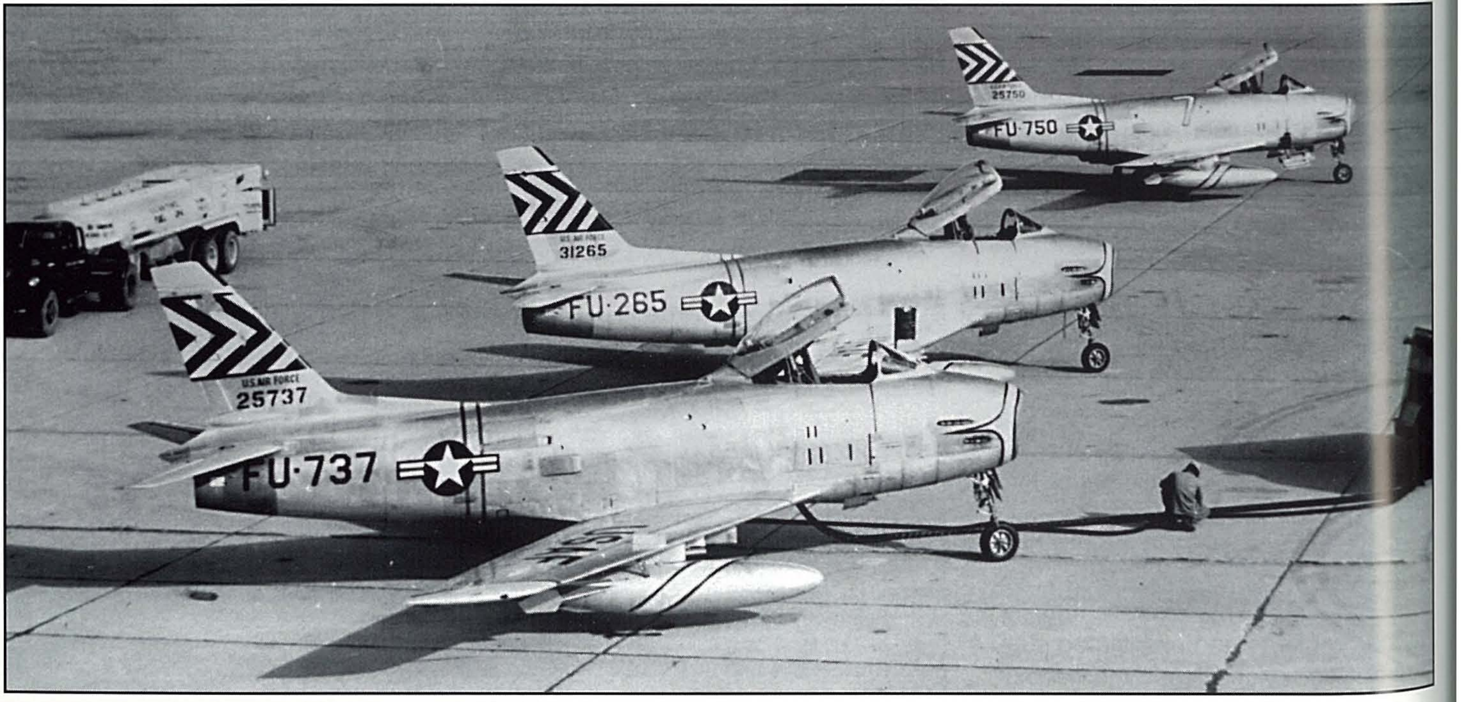
Another accident, on 24 June, was the result of the right main landing gear collapsing during landing rollout. The right wing and main landing gear were damaged. Like the 312th FBG, the 474th had its share of nose landing gear doors coming off in flight. 11 doors were lost between January and June.

Also like the 312th FBG, the 474th suffered from a lack of experienced maintenance personnel, difficulties with the new airplane and a lack of essential equipment needed to maintain the plane properly. Many of the neccessary maintenance items such as engine dollies, hydraulic test stands, ground power equipment and specialized test equipment were practically non-existent items that could be borrowed from the 312th. Emergency requisitions were submitted to expedite receipt of the needed items but that didn't help as they were slow to be delivered.

Above, 429th FBS Sabre had a da-glo red number 5 on the fuselage indicating it was part of the 474th FBG gunnery team. (via Kaston) Bottom, three 429th yellow and black trimmed Sabres. (via Norm Taylor)

Problems with inverter brushes, which failed too often, pointed to the fact that a new type was needed; one that would function well at high altitude. Pending delivery of the neccessary replacement brushes, the Sabres were restricted to flight at 20,000 feet and below.

At first, engine problems plagued the 474th starting with their short supply. Many engines were then ruined by hard starts and from foreign object damage. Training and emphasis on



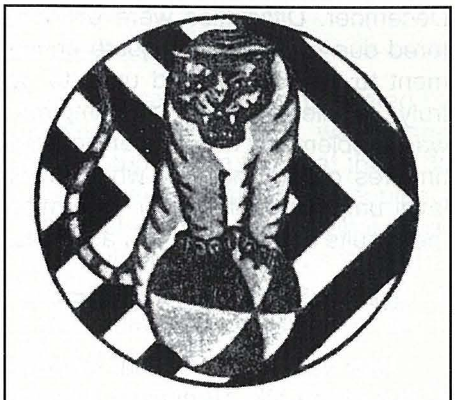
proper engine starting techniques and maintaining a clean parking ramp helped reduce the problems. In addition, fuel boost pump leaks plagued the unit. Nearly all of the pumps installed on the F-86Hs had to be replaced.

The group's armament section suffered similar difficulties as were experienced by other maintenance sections. There was a severe deficency of experienced personnel and the M-39 20mm cannon was totally new to the armament technicians. Additionally, facilities on base for firing the guns on the ground were inadequate and the guns couldn't be bore sighted until they were upgraded. Some of the aircraft received had to be modified so that their guns could be fired at speeds under 425 knots indicated. Gun firing circuit harnesses were found to be faulty on some airplanes with harness insulators having an accumulation of oil and dust. Inspection and proper cleaning solved that problem.

The second half of 1955 brought with it a series of changes. On 1 July, the group's mission was the development and maintenance of the ability to utilize conventional nuclear weapons. In September the mission was clarified and an appropriate regulation was written. The unit's primary mission became qualification with conventional weapons; as a fighter bomber group it had a secondary mission requiring it be familiar with but not qualified in the use of nuclear weapons. The group was also required to maintain the ability to meet Air Defence Command (ADC) requirements (use the F-86H as an interceptor) and to be able to conduct firepower demonstrations. On 6 October 1955, the mission priorities were reversed and the group was required to be fully qualified in the use of nuclear weapons. It now only had only be familiar with conventional weapons and be able to demonstrate those during firepower demonstrations.

The group's Sabres were grounded on 3 July for a technical order change associated with the nose landing gear doors. The grounding lasted 19 days. Most of the flying done during the remainder of the month revolved around getting the pilots back up to proficiency in the airplane after sitting on the ground for nearly three weeks.

The group was called on to participate in numerous operations and ceremonies from August through October 1955. From 4 through 30 August, 8 of the group's F-86Hs participated in Operation Hot Rod, conducted at Shaw AFB. To support Battalion Exercises at Fort Benning, GA, from 16 through 30 August, 4 Sabres conducted simulated ground attack missions. In mid-August, 16 of the group's Sabres performed a fly-by to honor retiring Secretary of the Air Force, Harold Talbott. This was followed by 5 F-86Hs conducting a fly-by to honor deceased 312th FBW Commander Col. H.H. Norman at Montgomery, AL. The 24 September celebration of National Kid's Day saw 14 Sabres make fly-bys as part of the festivities. Three days later, 42 of the group's F-86Hs made a mass fly-by during Col. William Monyer's assumption of command of the 312th FBW. 13 Sabres performed a firepower demonstration (TAC Mission 957) at Fort Sill, OK, on 7 and 8 October while 12 more F-86Hs performed a firepower demonstration at home base.



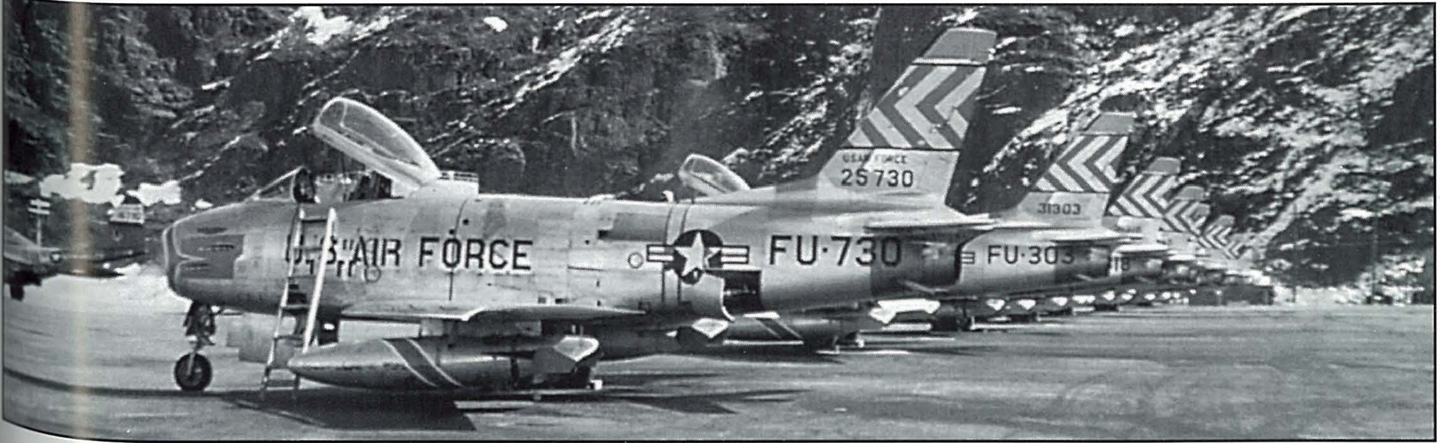
430TH FBS

In the last few months of 1955, aircraft availability suffered due to installation of leading edge slats. In December, for example, the 428th FBS had 75% of its aircraft out of commission for 15 days each to accomplish the work.

OPERATION SAGEBRUSH

The 474th FBG received orders on 22 October 1955 to partcipate in Operation Sagebrush. The group would be the aggressor during the exercise, which carried through

Below, 430th FBS, F-86H-5/10s seen here in Greenland, had red and gray trim. (USAF)



December. Difficulties were encountered due to lack of adequate equipment to enable involved units to be truly mobile. Scoring by "umpires" was problematic with higher echelon umpires calling the play when lower level umpires could better determine the results of the exercise's activities.

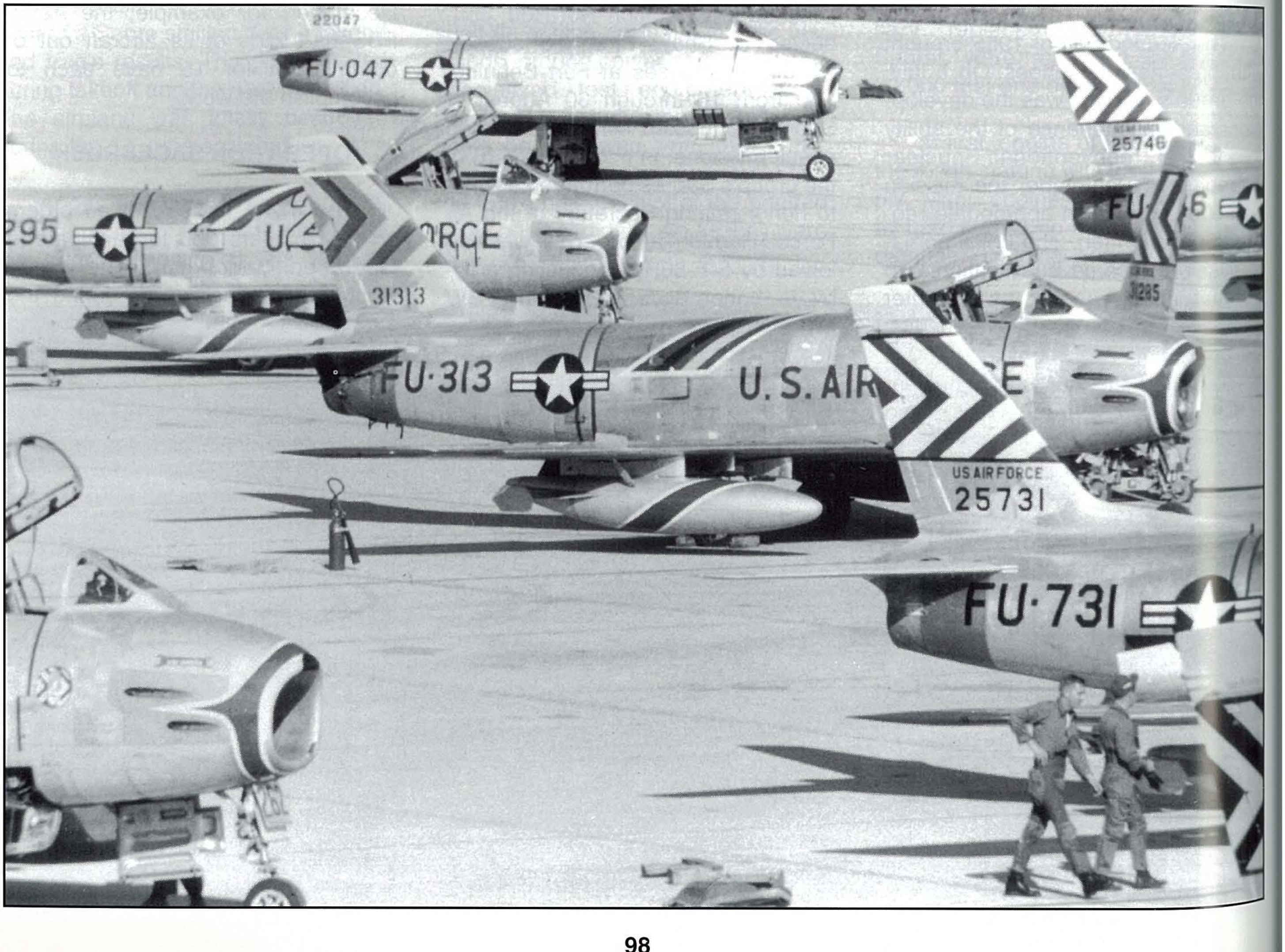
OPERATION SHORTSTUFF

This was an operational suitability test of the Mk. 12 nuclear weapon on the F-86H. Responsibility for conducting the program was assigned to the 428th FBS, which in the spring of 1955 was still in the process of transitioning to the F-86H. The squadron wasn't prepared for such an assignment but immediately took steps to correct deficiences. On 14 July, after considerable preparatory work had been done, the 428th received a practice alert Operations Order. That the unit's preparations hadn't been carried out in vain became clear as the operation was carried out quite successfully and much was learned from the experience. Initially, it had been planned to carry out "Shortstuff" in August, but delays caused by training requirements and equipment deficiencies caused the program to be postponed until February 1956.

Author's Note: Access to the January through December 1956 historical records could not be obtained. The author presumes the group's nuclear commitment rendered much of that material classified and it remains as such to this day. The accessible history picks up again for the January to June 1957 time frame.

The historical record for January to June 1957 gives a glimpse of what transpired within the group during 1956. Early in that year, the group received a commitment to rotate squadrons to Europe in support of NATO. Rotations started in April when the 430th FBS left Cannon AFB for a six month TDY in France, apparently operating from Toul-Rosiere Air Base. The 430th was replaced by the 429th FBS in October and the 429th returned to Cannon AFB during the first week in April 1957. The 429th was replaced by the 428th which departed for France on 27 March. The 428th returned six months later completing the group's NATO commitment.

Apparently, conversion of the group to the F-100D Super Sabre began in 1956 and the 430th FBS was the last of the group's squadrons to make the conversion, receiving its first 16 Super Sabres in January 1957. Its TDY to France was the last utilizing the F-86H. The group's last Sabres left the base on 14 March, bound for IRAN (Inspect and Repair As Necessary) inspection at Ontario, CA.



Below, 430th FBS Sabres surround the Wing Commander's aircraft, 53-1313, whose tail stripes were back to front: red-yellow-blue. A 312th FBW F-86H-1 is in the background. (via Norm Taylor)

413th FIGHTER DAY GROUP

413TH FDG

General Order 62, from headquarters 9th AF, created the 413th FDG on 11 November 1954. The group had the 1st FDS (red), 21st FDS (yellow ? blue) and 34th FDS (green) assigned. The colorful Col. George Laven, Jr. assumed command of the group. The group's mission was point air defense and air superiority, with a secondary mission of destroying surface targets.

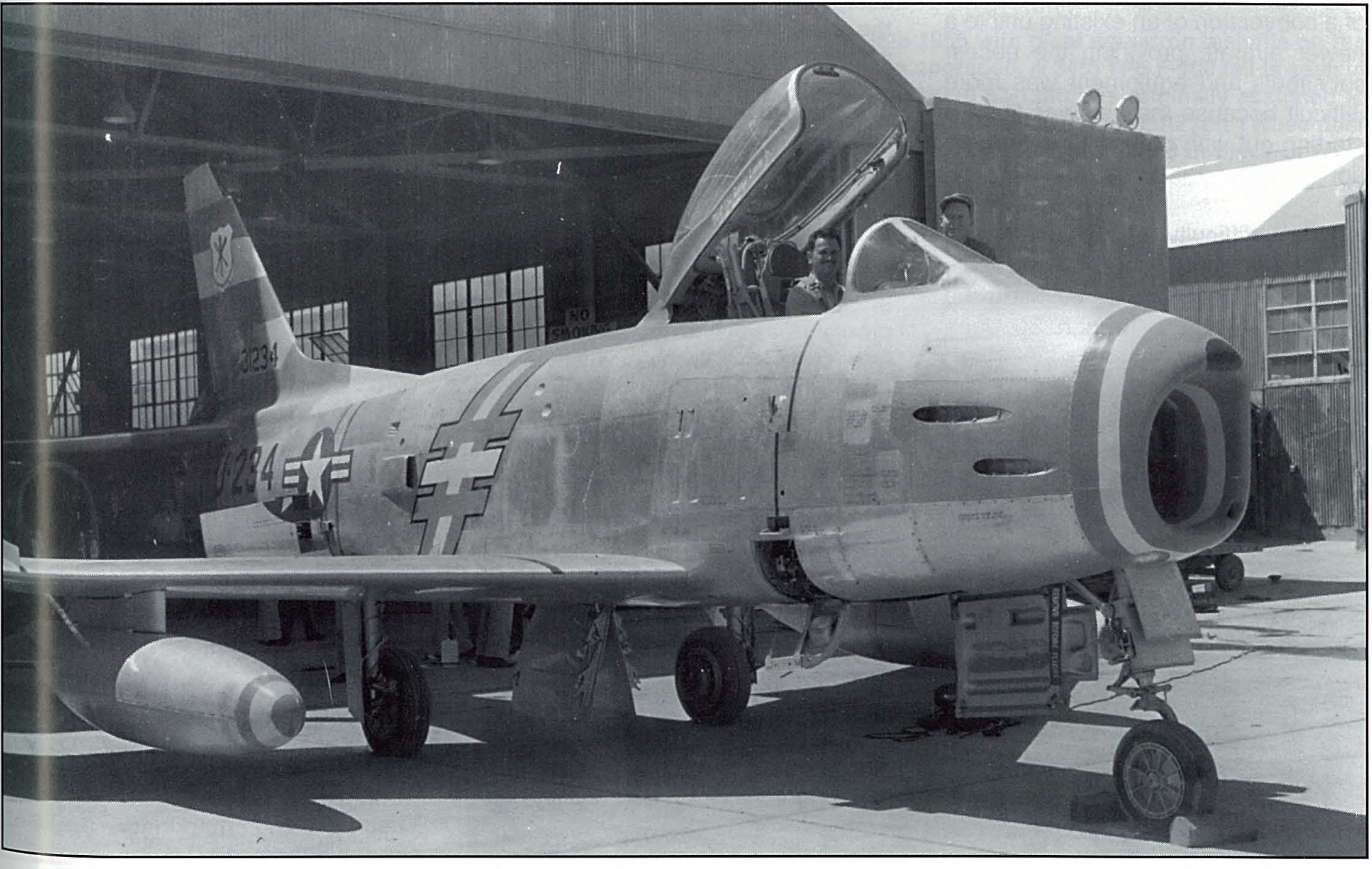
Initial F-86H received by the group were assigned to the 34th FDS. However, on the day the unit was activated, no F-86H aircraft had been delivered to George AFB, the group's home station.

One F-86H was received, on loan from Clovis AFB, during this initial reporting period (11 November to 31 December 1954), but it was on base to be used in the filming of "The McConnell Story". After the filming, the plane was retained for a short period by the 413th, but was returned to Clovis AFB after 7 pilots had been checked out in it.

Training was a problem, with no F-86H aircraft available, so the group had to make do with 6 F-86F Sabres that arrived during the first week of December. Their arrival was a plus but lack of parts put three of the planes out of commission and a serious shortage of qualified maintenance personnel only aggravated the problem. The problem was further aggravated by the fact that the 413th was to have initially been equipped with the F-84F and the original equipment authorization list was for F-84Fs and had to be amended to eliminate F-84F related equipment and add F-86H related items.

Most of the new pilots arriving in the group came directly from the Fighter Gunnery School. Some had been trained on F-84E/F aircraft at Luke AFB. Others received their train-

Below, F-86H-10 53-1234 was the mount of the 413th FBW commander Col. George Laven, Jr. who is sitting in the cockpit. Nose, drop tanks and fuselage stripe were da-glo red-yellow-green front to back. Horizontal fuselage stripes were da-glo red-yellow-green top to bottom. Spine stripes front to back were da-glo green-yellow-red. Tail stripes were red-yellow-green top to bottom. (via Dave Menard)



ing on F-86F aircraft at Nellis AFB. Other pilots were received from the 21st FBW and apparently many of these didn't have experience in swept wing jet fighters.

On 31 December 1954, the group received instructions to pick up 10 F-86H aircraft from the North American Aviation plant in Columbus, OH. Action was also taken to get the basic items, such as tool boxes and tools, on order. By the end of December, tool boxes were approximately 30% complete. Because the arrival of the F-86H was the result of the new activation of a unit rather than the result of a conversion of an existing unit to a newer aircraft, providing the necessary tools and equipment was more difficult because the unit was literally starting out with nothing and building up.

The difficulty of this task was highlighted in Col. Laven's comments in the historical records covering the period 1 January through 30 June 1955.

"If unit histories serve any useful purpose at all, may the 413th FDG be the shining example of how not to do it.

Start with the group commander, give him a small office and sixty-six (66) second lieutenants right out of flying school; do all of this a month before the organization is activated -- decide that one small office will not hold sixty-seven (67) people, so put them in a barracks; then form the unit primarily from units right on the station in which they pick the personnel where such factors as short discharges, records of company punishment, etc., never (?) play a part in who goes and who stays. Then three (3) days after activation give this new unit an overseas commitment of personnel.

Suddenly decided that all these pilots need something to fly, so give them six (6) beat-up, non-authorized, tactical aircraft that require a month's work to get them flyable. The day they are ready to fly, decide that they need gobs of new authorized aircraft, but never, never give them the people. Give them aircraft that won't fire, but those that do must have guns that don't fire. Give them reports to get out with no clerks to do them. Lastly, move them to a fine area to let them taste some luxury, but under no circumstances leave them there' put them in tents away from everything and everybody.

Be sure to keep the ratio of assigned, qualified, pilots way below the assigned trainees, so that those who do not need many flying hours get them, and those who do, do not. Play like the organization is fully manned and give it goals accordingly - then make them explain why they can't do the job.

The undersigned humbly assumes that the readers of this trivia will take it in the spirit in which it is written. The problems as listed in the history are not uncommon to any newly activated unit. However, it is felt that they have prevailed longer than most, and unfortunately, due almost solely to lack of personnel, are still with us.

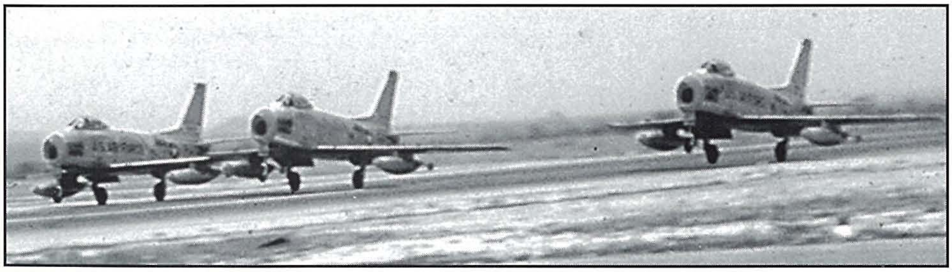
The greater the problem, the greater the challenge; the ingredients are scarce, but the spirit is willing and if the job can be done, it will be done."

The comments were signed by Col. Laven. Not a pessimist, the historian wrote these comments in the forward to the history for the period.

"Although conditions have improved greatly since the last history, many of the same problems are still with us after eight months of operation. The group now has its full complement of F-86Hs and most of the pilots have finished their transition, but the shortage of personnel and skill level still exists. We are still of the opinion that the 413th will be the best group in the 9th AF, but time and men are needed to make this a reality."

The skill level deficiency mentioned relates to the maintenance personnel. A skill level number defines the proficiency at which a maintenance technician can do his job. A 3-skill level technician, for example, is still largely a trainee and has to be constantly supervised. A 5-skill level technician can work largely alone but safety of flight type repairs must be inspected by a higher level technician before the corrective action can be signed as successfully completed. What the 413th lacked was an abundance of 5 and 7 level technicians and this complicated the job of keeping the new F-86H Sabres in the air.

Initially, the group assigned maintenance personnel, flight crews and aircraft to the 34th FDS, believing (rightly so) that consolidating all assets would expedite training and conversion. The procedure worked, the thought being that operational readiness could be achieved by get-

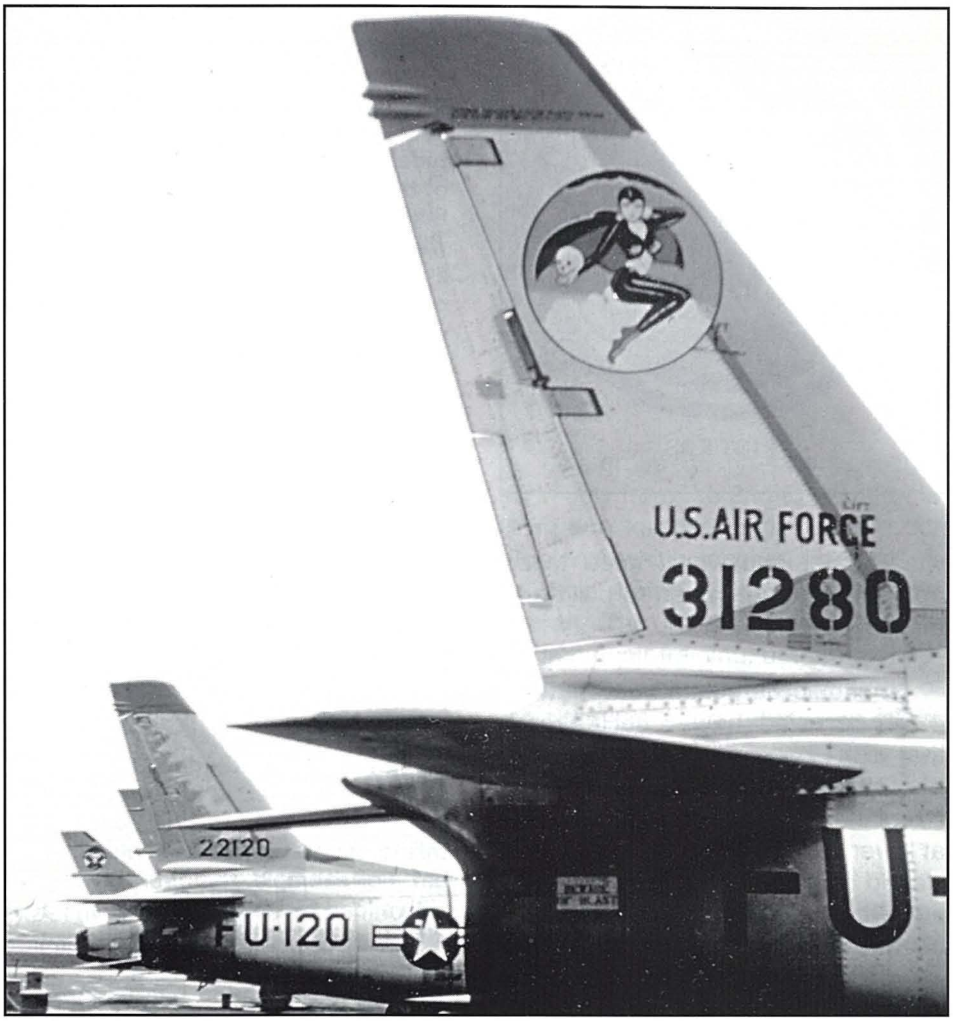


At left, formation takeoff of three 1st FDS F-86Hs at George AFB, CA. The markings were da-glo red and consisted of all-red vertical and horizontal tail and spine, lower canopy frame, fuselage stripe, intake lip and drop tank nose. Unfortunately, the conversion from color photo to b&w photo obscures the markings. (Lt Col. Gordon Scharnhorst)

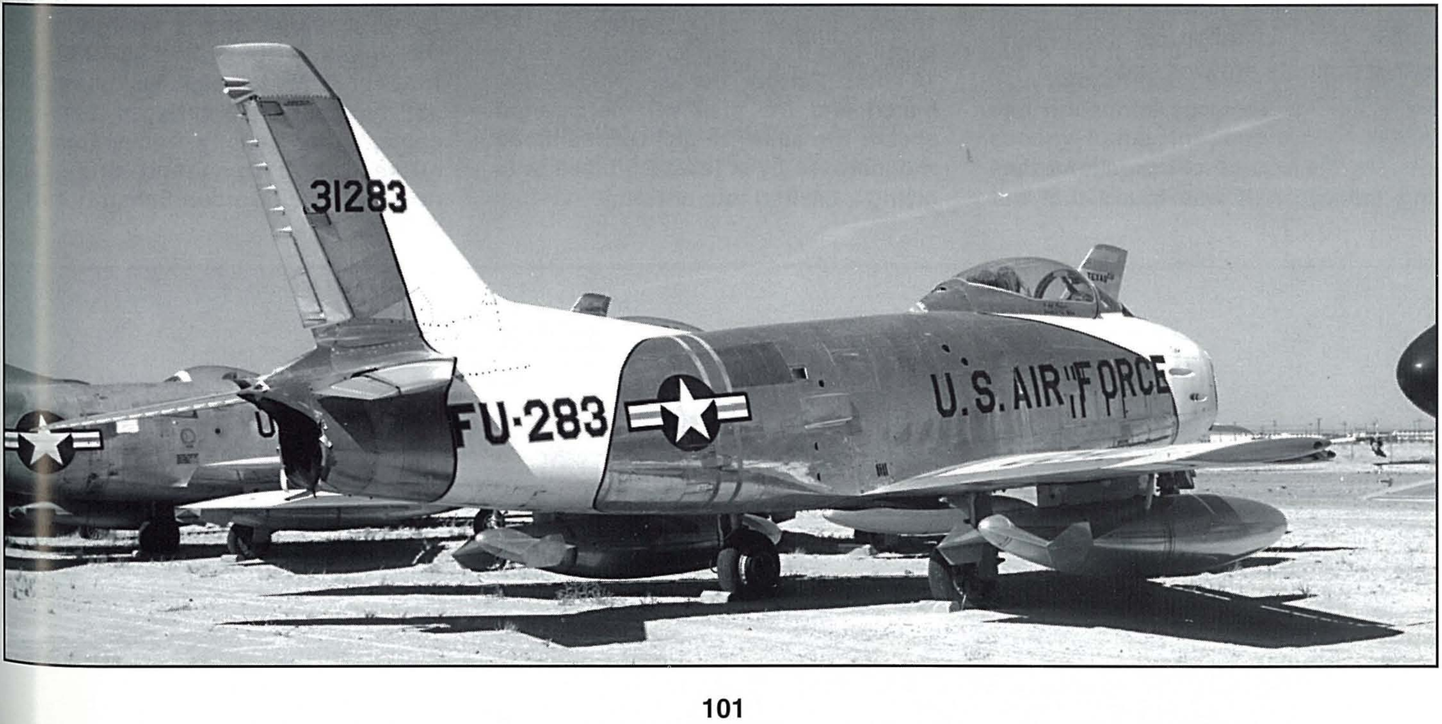
ting them up and running one squadron at a time.

Manning in the maintenance ranks continued to be a problem. With 72% of its authorized aircraft and 92% of authorized officers on station by May, but nowhere near enough skilled maintenance personnel, the unit still had serious problems meeting operational commitments. Manning problems affected the administrative ranks in the group as well, causing the unit to consolidate administrative personnel so that on the job training could be completed more quickly.

It should be understood that Col. Laven's comments about too many pilots coming right out of flying school weren't in jets. Most of the group's pilots came out of F-84-equipped flight schools, having graduated in September 1954. Their only flying time, up to January and February 1955 when the F-86H started becoming available in some numbers, had been their check ride in a T-33. Had they been assigned to a unit that had, for example, F-84G aircraft, similar to the F-84E they flew in gunnery school, the situation wouldn't have been too bad. But coming to a unit that was receiving swept wing fighters created a problem in that the new pilots would have to be trained to handle the idiosyncrasies of a swept



Above, 1st FDS F-86H-10 53-1280 in late 1956 with giant squadron insignia on the tail. Note rudder surfaces have not been upgraded. A 34th TFS F-100 tail is seen in the background. (via Kaston) Below, F-86H-10 53-1283 was originally assigned to the 413th FDG and is seen in retirement at Davis-Monthan AFB, AZ, on 1 November 1965 in special program markings. Trim was da-glo red outlined in black or blue. (Norm Taylor)



21ST FDS

wing fighter and would need to be able to fly the jets often to build and maintain proficiency.

It should be pointed out that the 413th received new F-86H aircraft that didn't have wing slats. Thus, in the landing pattern where slats allow the plane to fly slower and maneuver at lower speeds, the F-86H in its non-slatted configuration required care to avoid banking and turning too tightly or tooling around the pattern at too low a speed. Quoting the historian's report: "Although experienced pilots consider the aircraft comparatively easy to fly, it represents a 'hot machine' for the inexperienced pilots."

The group historian's report for the first half of 1955 elaborates on the difference wing leading edge slats make when installed on the F-86H. His comments are well stated and are quoted here:

"In the course of operations during the cycle, it was found that the solid leading edge wing with which the F-86H is equipped, is not suited for the maximum performance which can be derived from the aircraft. In fact, stability at lower speeds and at high altitudes suffers greatly from the design of the present wing. It has been found that the F-86H gives little or no buffet warning and causes an abrupt yaw accompanied by a roll prior to the stall point. In addition, the stall causes a wing drop rather than a straight ahead affect. This lack of warning and stall is extremely dangerous, especially if it occurs in the landing pattern. Flying the traffic pattern with gear down, flaps and dive brakes extended, the aircraft will yaw and stall if more than one positive "G" is pulled at speeds must be flown - thus increasing the touch down speeds, causing a higher consumption rate for tires, tubes and brakes. Additionally high blowout rates result, causing damage to the wing flaps.

Operationally speaking, the radius of turn at all altitudes, particularly above 25,000 feet, is too large - due to inability to pull Gs to the point where this factor makes it unsuitable for combat. For example, the aircraft will stall with a load factor of less than one positive G at 45,000 feet.

This organization has used every method at its disposal to have the Air Force approve and purchase for retrofit all F-86Hs in the unit with the 6-3 leading edge slat......

Action has been initiated through all available channels in order that the problem might be resolved. If installed, the leading edge slats will reduce all speeds in the traffic pattern by 20 knots, and the actual landing speed by 15 knots. Further, the yaw will be eliminated and the stall will be straight ahead. The ability to pull Gs at altitude will increase by at least 2.5 times thus giving a desired rate of turn."

15 F-86Hs were received in January 1955. By that time, 70 tactical (fighter) aircrews were assigned, but of those 11 had fully transitioned to the F-86H and only 8 were considered fully trained.

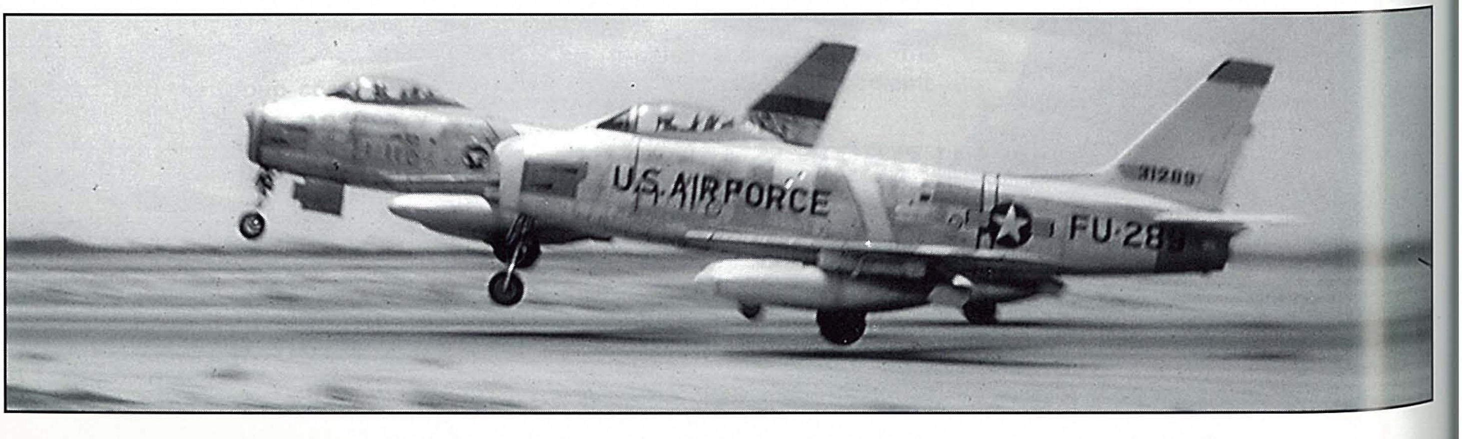
In early February, 29 F-86Hs were located on the base. In early March, six pilots departed George AFB to pick up additional F-86Hs at Columbus. They didn't return until 24 March because, in the interim, all F-86H aircraft were grounded until technical order compliance on the ejection seat was completed.

The group moved, in March, to what came to be called "Tent City" on the base to facilitate reconstruction of the parking ramp. The then present asphalt needed to be dug up and replaced by concrete to accommodate the F-86H and future Century Series fighters.

The group received 30 new F-86Hs in April which brought about an increase in flying time achieved.

May brought more flying and participation in non-training type activities. 15 F-86Hs departed the base on

At left, a 34th FBS Sabre is flanked by two 21st FBS Sabres on takeoff. The 34th F-86H is marked similarly to Col. Laven's aircraft and is thought to be the squadron CO's sabre. 53-1289 from the 21st FDS had da-glo yellow vertical and horizontal tail surfaces, fuselage spine, lower canopy frame, fuselage stripe, intake nose and drop tank noses. (Lt Col. Gordon Scharnhorst)



29 April to participate in a formation fly-by over the town of Norman, OK. This was part of the Oklahoma Air Day festivities. Twelve F-86Hs performed a formation fly-by over Taft, CA, in conjunction with a recruiting program going on there and a request by the Taft Junior Chamber of Commerce. The group supported Armed Forces Day celebrations at Hill AFB, UT, March AFB, CA, and at George AFB, CA. May also brought about the arrival of the final 7 F-86Hs to be assigned to the group. The group now had its full complement of "H" model Sabres and had received them all within a five month period.

Manning continued to be a critical problem. As the chart below shows, the ratio of assigned maintenance personnel to assigned aircraft dropped significantly between January and March 1955, began leveling out in April and was fairly constant through May and June.

Month	Aircraft	Maintenance Personnel	Personnel to Aircraft Ratio
Jan.	8.8	102	11.6
Feb.	21.0	119	5.7
Mar.	30	113	3.8
Apr.	47	127	2.7
May	74	157	2.1
Jun.	82	170	2.0

May's allotted flying hours flown; every airplane in commission was flown. The group went on a wartime footing to do this though, working maintenance and support personnel up to 14 hours per day. The long term impact came in the form of lost future flying hours because, in order to meet the flying hour commitment for the month, the group didn't complete planned and scheduled maintenance. It wasn't simply ignored; it was postponed, which meant it would have to be done later at the expense of flying hours for the month the maintenance was completed. While this demonstrated what could be done in a wartime situation, it also demonstrated the havoc such procedures would wreak on a peacetime fighter squadron.

Eight of the group's F-86Hs participated in the Western Air Defense training exercise which covered the Los Angeles and San Francisco area. Four more of the group's Sabres participated in a similar exercise at Larsen AFB during 24-25 June.

The historian's report for 1 July through 31 December 1955 has a note of optimism to it. The transition of the group to the F-86H was reported completed in August of that year. Low skill level maintenance technicians remained a concern, but a solution was found' Project Tool Box, initiated by 9th Air Force was designed to expedite and enhance training of maintenance technicians working to achieve the 5-skill level rating. The 1st FDS was designated to conduct training and store affected aircraft. The training program and affected training facilities fell under the direct control of the squadron commander.

Operation Tool Box actually started within the group on 1 August and was completed on 26 September. 97 of 105 airmen who were trained under the program successfully completed the final tests and those that didn't were slated to be retested. A total of 104 maintenance technicians ultimately successfully completed the program.

The period saw the continuation of a problem that had revealed itself in March. The nose section of certain F-86H aircraft suffered from excess vibration during cannon firing. While a modification was developed and implemented, the group suffered a slowdown of its ability to train pilots to full operational readiness. A shortage of 20mm ammunition further aggravated the situation.

The group's Sabres were grounded in July from the 2nd to around the 22nd due to nose landing gear door problems which resulted in a technical order being issued to modify the aircraft. The pilots suffered a slowdown in their training, but the maintenance sections took full advantage of the situation. Aircraft that were out of commission were brought back into commission and the training of maintenance technicians accelerated significantly.

With the completion of modifications to the F-86H nose landing gear doors, the 413th's Gunnery Team was able to start air-to-ground gunnery practice in preparation for the 9th AF Gunnery Competition, which was held from 6 to 24 August at Wendover AFB. Ten pilots participat-

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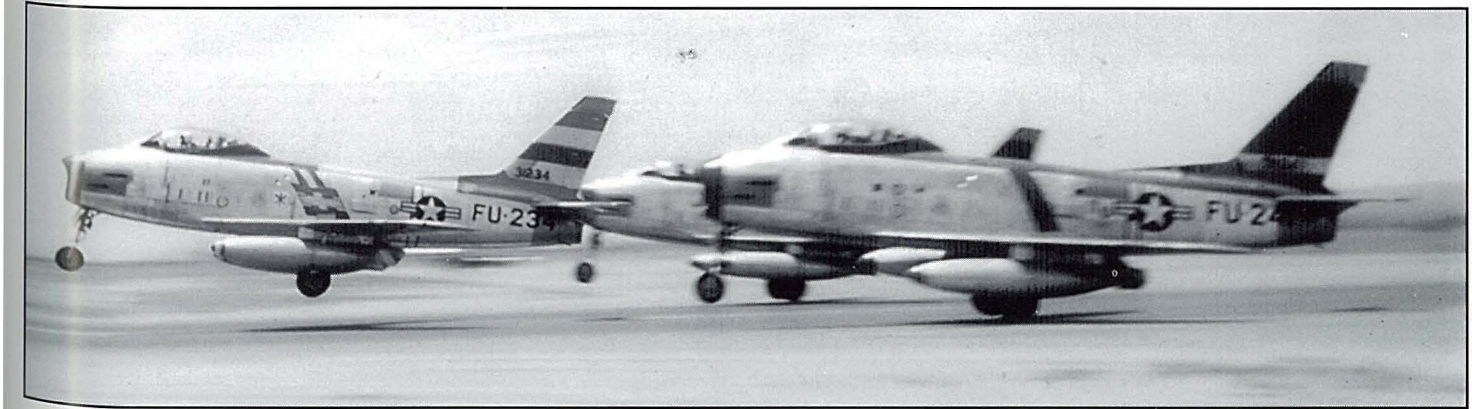
Below, Col. Laven takes off while leading a flight of 34th FDS F-86Hs. The 34th aircraft had da-glo green vertical and horizontal surfaces, spine, lower canopy frame, fuselage stripe, intake lip, and drop tank noses and drop tank fins. (Lt Col. Gordon Scharnhorst)



ed in the gunnery meet and one pilot from the 34th FDS came away with the highest score for, as the historian puts it, "all around flying." Interestingly, Col. Laven led the team that participated in the meet.

In September the group received its first three F-100C Super Sabres. Conversion to the F-100C was expected to be completed in the third quarter of fiscal 1956. Meanwhile, two more F-100Cs were picked up at the North American plant in Los Angeles in October.

On 31 October, 9th AF directed the group to prepare 27 Sabres for transfer to the 312th FBG. November saw the group participating in Exercise Sagebrush with the 21st FDS representing the group. The final phase of the program was completed early in December when the participating aircraft and crews returned to George AFB.

November saw a continuation of the lack of 20mm ammunition. The problem was that the practice ammunition had been declared unusable, except for certain lots. Unfortunately for the 413th, none of the usable lots were available on the base.

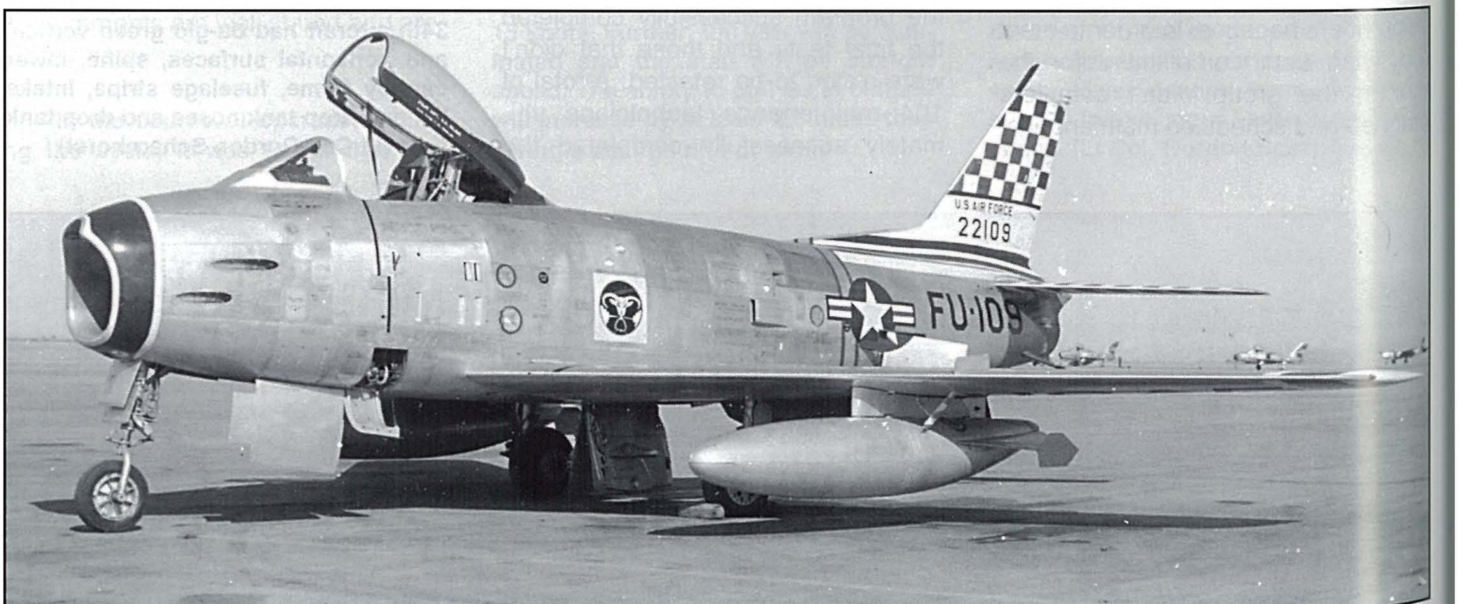
In July, the group had received word that there was a shortage of J73 engines in TAC. The shortage continued into October, no specific end date given, and the best available remedy on the base was to take a serviceable engine out of a stored F-86H. The group had 28 F-86H aircraft in storage, as a result of Operation Toolbox, and it was these planes that engines and other vital parts were drawn from.

Maintenance problems didn't just plague just the technicians at home. The gunnery team at Wendover had to endure numerous material failures associated with the M39 cannon but they documented the problems in detail so that each problem could be effectively resolved. In spite of maintenance difficulties, the group prepared the 27 aircraft called for to be transferred to the 312th FBW. The planes were still at George AFB in December while the group awaited arrival of ferry pilots and maintenance technicians from Clovis to inspect and accept the outbound aircraft.

The F-86H remained the principal tactical aircraft in the 413th FDG through March 1956. At that time, the remaining Sabres were grounded so that they could be maintained and inspected in preparation for transfer. Up until the grounding, the group still experienced problems with the F-86H cannon system. With 27 jets transferred out, 48 remained. Of those Sabres, only 11 could fire all four cannon. The remainder still had problems with structural deficiencies in the nose of the aircraft or gun gas purging problems.

The last significant activity involving the group's F-86Hs involved a TDY to Wendover AFB to participate in the Dart aerial target evaluation. Two F-100Cs and three F-86Hs deployed and arrived at Wendover on 13 January. The Sabres were used to tow the Dart aerial targets and the F-100Cs made firing passes at the targets as their part of the evaluation. The evaluation was completed and the aircraft returned to George AFB on 19 January.

Below, 34th FDS F-86H-5 52-2109 in 1955. Nose, tail, lower canopy frame and wing tip trim were green. Checkerboard pattern was found on the horizontal stabilizers, too. (via Norm Taylor)



AIR TRAINING COMMAND

"How to survive the loss of skilled manpower was the most serious problem at Nellis AFB during the first six months of 1955. Bases throughout the Air Force were suffering from the exodus of men who were called to duty during the Korean War and did not reenlist at the end of their tours. Nellis was one of the bases where manpower losses cut the deepest and left the most severe scars. The greatest drain came in the aircraft mechanics field. The replacements for these skilled airmen were airman without experience as jet mechanics who had recently entered the service.

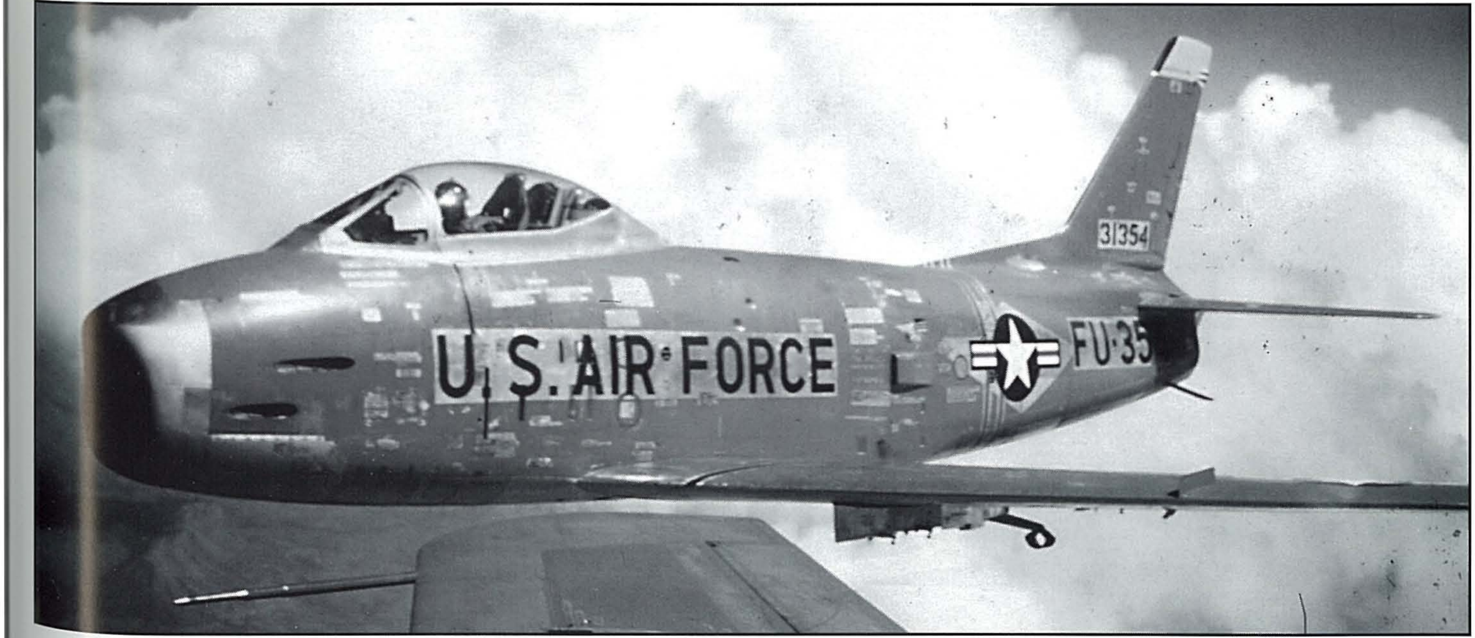
Since the success of the training program depends to a great extent on the maintenance function, the extreme shortage of skilled men in the maintenance field directly affected the mission."

The above was written by Ruth Whitaker, Nellis AFB historian during the period January to June 1955. As will be seen, Nellis AFB had a huge training commitment, utilizing a varety of aircraft types. Maintaining them all was a major challenge under normal conditions, given the nature of the mission they were employed to fly. That one difficulty can significantly magnify others can be seen in the further comments the historian wrote.

"A series of events occurred at Nellis during this period to impede the normal operation of training. First, gunnery training was restricted during the first three months of the year until the wing structure of all F-86 aircraft was modified. Student flying was halted for a week during an extensive aerial search for a Nellis pilot who was missing after a test flight. In March and April, flying was interrupted intermittently by weather and the nuclear tests at the Nevada Proving Grounds. A deficit of student flying time accumulated during these months and reached approximately 1,000 hours by May.

At the same time that this deficit was amassing, the workload of maintenance was rapidly increasing due to other circumstances. Two new types of mission aircraft, the F-86H and F-100, were being assigned to the base, making a total of five configurations of training aircraft to maintain. The

Above and below, red-orange Nellis-based F-86H-10 target tug 53-1354 in flight. (Col J. Ludwig via Dave Menard)



assignment of new aircraft and the transfer of a portion of the F-86Es generated a tremendous amount of manhours required for maintenance and administrative work. The F-86s which remained at the base were deteriorating rapidly and requiring more maintenance. Delays in obtaining all the parts required for the aging aircraft decreasded supply effectiveness and retarded maintenance of the aircraft.

Without sufficient skilled personnel, maintenance could not cope with this workload and furnish enough aircraft to reduce the backlog of flying hours. It became apparent during May that some steps had to be taken to provide more flying hours if Nellis was to conduct a successful training program."

Part of the solution was the transfer of the base's F-84s to Luke AFB, giving Nellis one less aircraft type to support. Students who were scheduled to train at Nellis in the F-84 (specific model not mentioned) were to be transferred to Luke.

In a further step to reduce maintenance woes and increase flying hours, temporary concessions were requested from the Training Group. These were:
***Eliminating use of radar on the gunsight during combat crew training**
***Requiring use of external fuel tanks on all combat crew missions**
***Curtailing navigational proficiency flights**

Readers familiar with flying combat aircraft of the period will remember that maintaining aircraft radar was a difficult matter, radar still being complex and not altogether reliable. The requirement to use external fuel tanks on all flights significantly reduced the number of times such tanks had to be removed and installed on the aircraft, significantly reducing maintenance man-hours installation, fuel transfer and leak check procedures.

An anticipated loss of some forty instructors was cause for great concern as these men were all Korean War veterns and their replacements would be men who had significantly less experience.

How much of a job did Nellis AFB have, where combat crew training was concerned? Another quote from historical records explains the situation well.

"Nellis Air Force Base was engaged in the Air Force, encompass-

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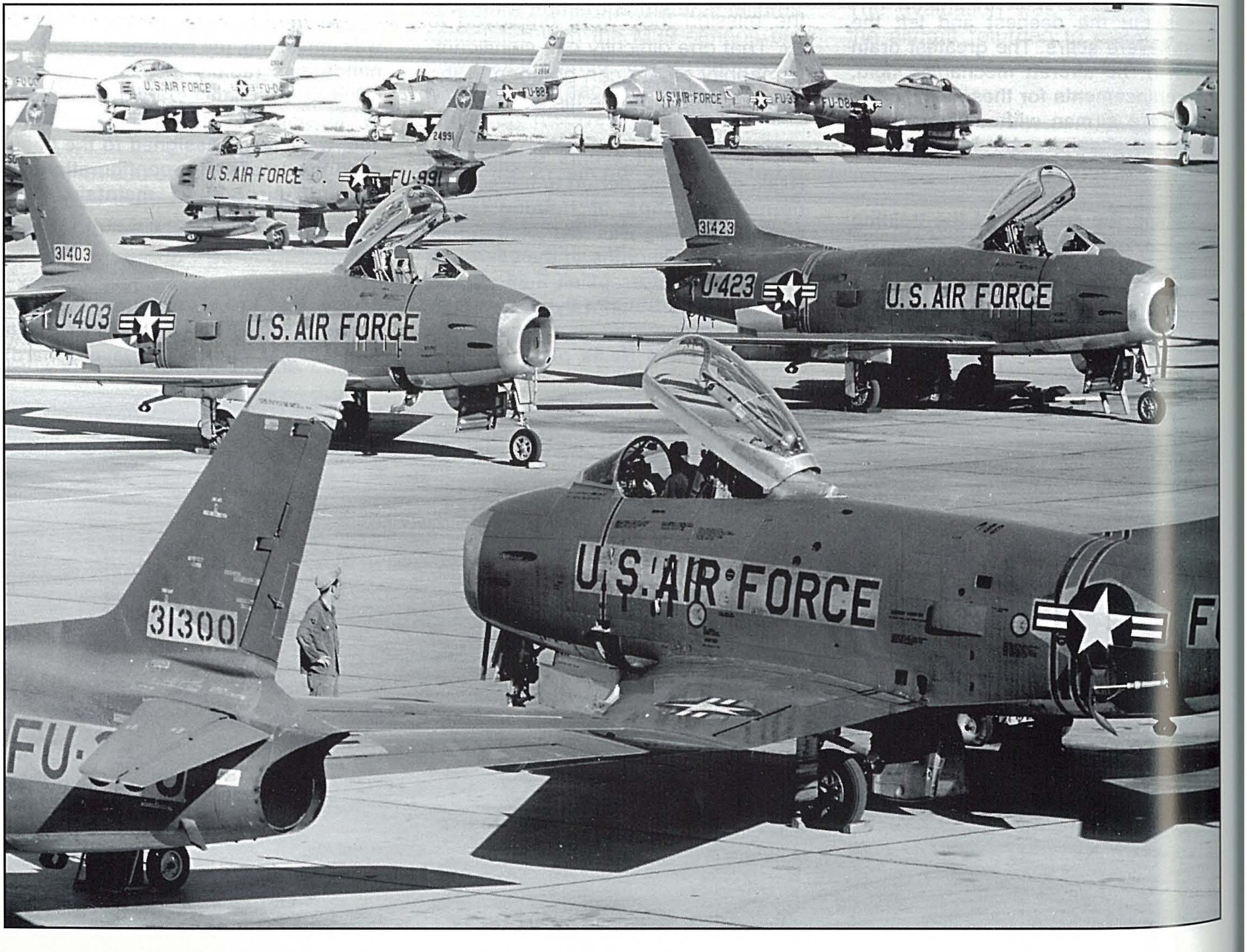
Below, Nellis AFB flight line with four red-orange F-86Hs in the foreground. (via Dave Menard)



ing all types of fighter training necessary for members of a tactical unit in the armed services of the United States and allied countries. The training missions were as follows:

1. To train pilots for the USAF, ANG, and MDAP countries to become highly proficient in the use of fighter aircraft as a combat weapon.
2. To train combat fighter pilots and instructors for the USAF in all phases of the employment and delivery of atomic, biological, and chemical weapons.
3. To train pilots for the USAF, ANG, and other armed services, and MDAP countries to become highly qualified to instruct in all phases of fighter weapons employment.
4. To train pilots for the USAF, ANG, other armed services, and MDAP countries to become highly qualified to supervise fighter weapons programs.
5. To indoctrinate commanders and senior officers of the USAF in the latest fighter weapons programs."

The Combat Crew Training School performed the first two missions while the USAF Fighter Weapons School performed missions three through five. In addition, the base provided support for activities not associated with its primary mission. Among the best known activities is the USAF Fighter Weapons and Gunnery Meet, which was and is held annually.

CURRICULUM

USAF pilots received a 110-hour flying course either in the F-86F or F-86H. All students were required to complete a 40-hour pre-fighter familiarization course at Laughlin AFB before entering combat crew training at Nellis or Luke. Purpose of the course was to give students more time in jet aircraft before entering the more demanding Combat Crew Training environment.

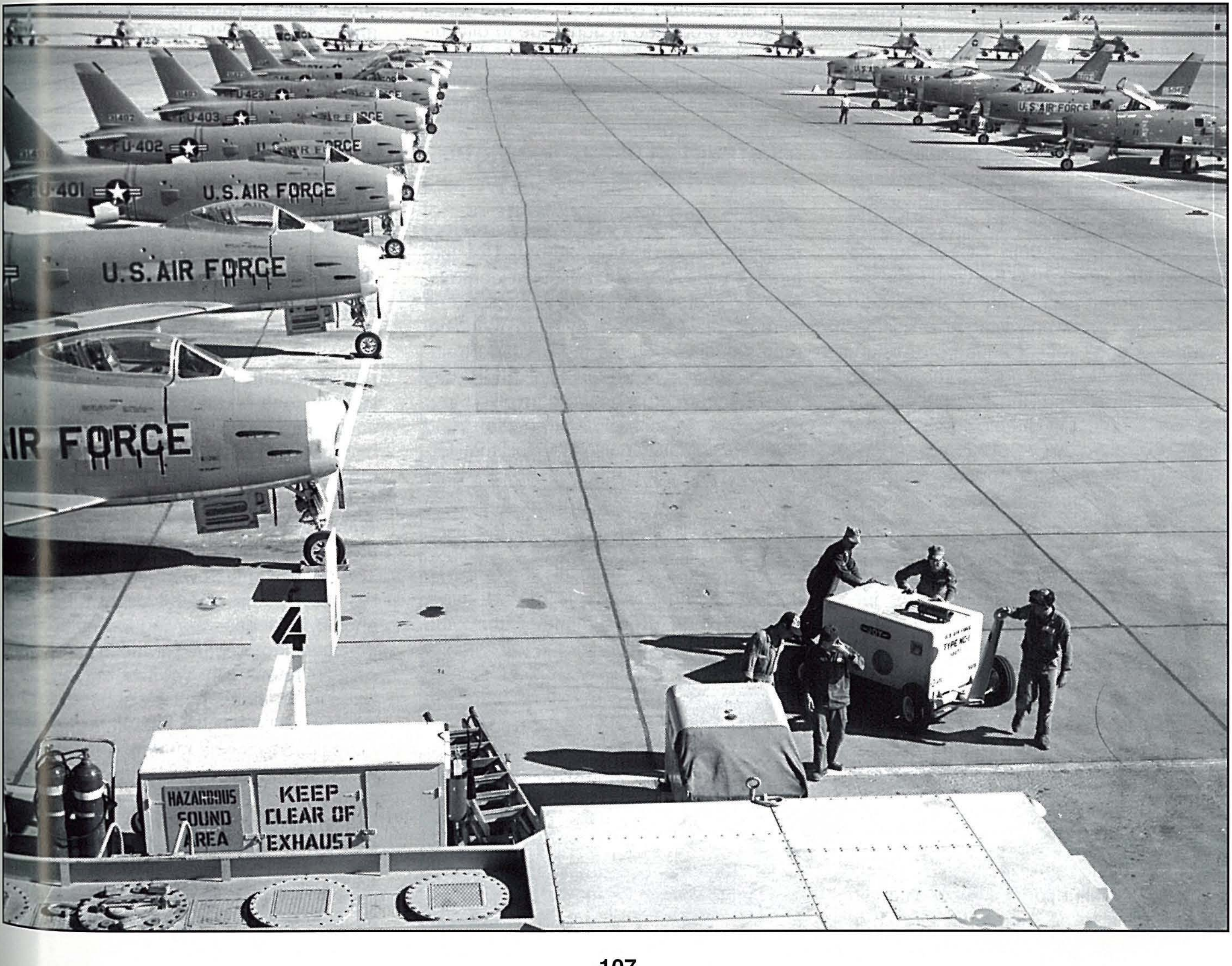
The F-86H course for pilots was similar to the F-86F course published on 20 April 1955. The F-86H course included 10-hours of special weapons delivery because the "Hog" was equipped with the low altitude bombing system (LABS). The first class of F-86H students began on 31 May.

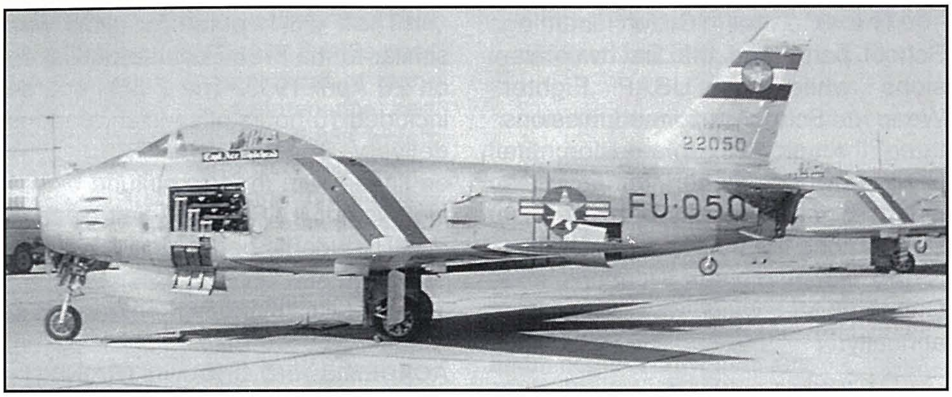
F-86H COURSE CURRICULUM

ACADEMIC AND GROUND TRAINING

Aircraft General	23hrs
Armament and Fighter Gunnery	17hrs

Below, Nellis AFB flight line with two rows of red-orange F-86H target tugs. Aircraft in the back of the photo that are seen nose-on are F-86Fs as are the two silver aircraft at the end of the left hand row. The silver aircraft at the end of the right hand row is an F-86H. (via Dave Menard)





At left, 3395th CCTW F-86H-1 52-2050 was a William Tell entry in 1956. The fuselage, wing tips and tail were striped in red-white-blue. Most natural metal F-86Hs from the 3395th had a red tail stripe only in place of the red-white-blue ones. (W. M. Jefferies via Menard) At lower right, F-86H-10 53-1495 with target tug installation stowed under the left wing. (W. M. Jefferies via Menard)

Tactical Operations	10hrs
Physiological Indoctrination	2hrs
Celestial Navigation	10hrs
Air Crew ABC Training	64hrs
Flying Safety	10hrs
FLYING	
Field Orientation (T-33)	1hr
Instruments (T-33)	9hrs
Transition	4:20hrs
Aerobatics	4:00hrs
Formation	6:40hrs
Night Transition	2:40hrs
Night Formation	1:20hrs
Air-to-Air Gunnery	25:00hrs
Air-to-Ground Gunnery	24:00hrs
Tactics	22:00hrs
Special Weapons Delivery	10:00hrs

TRAINING AIDS

The F-86Hs assigned to Nellis were, in the main, Block 10s, many of them produced late in the production run of this block. Some Block 1 aircraft were assigned to the 3596th CCTW but the number was small. How the wing used the Block 1 aircraft isn't clear, as the aircraft record cards show only wing level assignment and don't reflect squadron assignments. As might be expected, the training aids associated with the F-86H's use by the wing reflected employment of the Block 10 variant. An F-86H 20mm cannon mockup and cockpit console mockup were among the training aids provided.

TRAINING AIRCRAFT

Seventy F-86H-10 aircraft were ferried directly to Nellis from the North American plant at Columbus, OH. The 3598th Combat Crew Training Squadron began training with the aircraft on 31 May, beginning with Class 55-K.

The F-86H had been under evaluation since the previous fall by the Training Research and Development (TR&D) Section at Nellis. Their evaluation showed the F-86H had an exceptional rate-of-climb and acceleration but needed certain modifications to be a superior aircraft in the fighter-versus-fighter mode. The F-86H was seen to be an asset to the training program because of its ability to provide students with special weapons delivery practice. The F-86H would also serve as a training aid in that it was better suited to use as a tow aircraft for the F-100 air-to-air training program. The F-86F and T-33 weren't fast enough to meet the F-100 curriculum needs in this respect.

The F-86H wasn't without its problems. In March six F-86Hs assigned to the TR&D Section were grounded for ejection seat and canopy modifications. Thirty-two Hs were grounded in June due to difficulties with the J73-3D engine. At the time of notification, the base was told the planes would likely be grounded until September.

INSTRUCTOR UPGRADING IN THE 3598th CCTS

The 3598th CCTS's instructors received approximately 30-hours of lectures on the J73 engine, flight controls, aircraft systems and flight procedures from North American Aviation technical representatives during the upgrade training conducted between April and June. Twenty hours of flying were involved, per instructor, to complete transition and involved actual transition flying time, formation flying, air-to-air and air-to-ground gunnery, applied tactics and special weapons delivery.

Instructors who transitioned to the F-86H then ferried aircraft to the base, checked out other pilots within the Training Group and aided the transition of instructors of the 3597th CCTS to the new airplane.

Amidst the transitioning, plans were made for instructors from the 3598th CCTS to fly tow and chase missions during the ATC Weapons and Gunnery Meet at Luke AFB in July. Twenty F-86Hs were slated for utilization during the meet for use by the special weapons delivery team and additional use as support aircraft. The 3598th was relieved of student training during the weapons meet for a number of reasons, among them the decision that the F-86H wasn't living up to expectations in the training role. Classes were small; Class 55-K had five original students and three additional students classified as holdovers. Classes 55-L and 55-M had five students each.

MAINTENANCE DIFFICULTIES

During the period of preparation for the weapons and gunnery meet at Luke AFB, Nellis maintenance personnel were under an incredibly heavy load to deliver mission capable airplanes and the requirements must have seemed unrealistic at times. F-86Es and F-84s were being transferred off the base. F-86Fs and T-33s were being sent off base for IRAN, an indepth depot level type of maintenance. New aircraft, F-86Hs and F-100s, were being received and the acceptance inspections had to be completed. Twenty-seven aircraft, the best of the lot, had to be maintained in peak condition for the upcoming weapons and gunnery meet. Despite this requirement, the requirement for aircraft to meet daily training missions had not been reduced. Not surprisingly, maintenance suffered because precious hours were needed to provide training for the new technicians.

The arrival of the F-86H complicated an already difficult maintenance program. The F-86Hs arrived with each aircraft having one of three sub-types of the J73 engine, the base having been advised that it was to prepare for the arrival of aircraft with only one of the engine subtypes. The base had also been told it would receive Block 1 aircraft, armed with .50 calibre machine guns, but instead got Block 10 aircraft armed with 20mm cannon, as was noted earlier. Critical items couldn't be obtained from depots in a timely manner and in June fifteen F-86Hs were out of commission for parts as a result. Thirty-two H models were grounded in June as a result of engine failures.

The chart at right shows how the F-86H performed during this period:

Month	Total Hours Flown	Average Number Of Aircraft Possessed/ Day	Average Number Of Aircraft In Commission /Day	% Aircraft AOCP	% Aircraft AOCP For Other Than Parts	Total % AOCP
January	114	6.3	4.6	7.2	19.9	27.1
February	92	6.9	4.4	0.0	35.6	35.6
March	9	7.0	.1	0.0	98.5	98.5
April	247	9.3	6.1	9.7	24.3	34.0
May	841	38.6	20.5	3.9	43.2	47.1
June	1102	70.0	24.8	16.1	47.3	63.4

ACCIDENTS

As might be expected the F-86H, used in the training role, could and did suffer accidents. A 1st Lt, an academic instructor who'd received the Instructor of the Month award in January, was killed in an F-86H tow accident on 13 May.

After the grounding of thirty-two F-86Hs in June, a split phase type of training was initiated at Nellis. The first three F-86H classes weren't affected by this change, but with too few aircraft in commission to continue an all F-86H curriculum, all subsequent classes went through the split phase program. That program entailed each student receiving 10-hours in the T-33, 70-hours in the F-86F and 30-hours in the F-86H. F-86F classes were intended to convert to the split phase program, beginning with Class 55-I. However, before that class could begin the split phase program, it became apparent that logistical support for the F-86H wouldn't be adequate to support even that program. An insufficient number of maintenance personnel and other factors added to the wing's woes, making it clear that 110 hour split phase program couldn't be properly supported. The split phase program was cancelled. Those F-86F classes that were to have gone into the split phase program received 80-hours in the F-86F instead and the three classes in training in the F-86H had their flying hours reduced from 110 to 80. As a side note, the 80-hour course was considered the minimum a student could complete and still be considered combat capable.

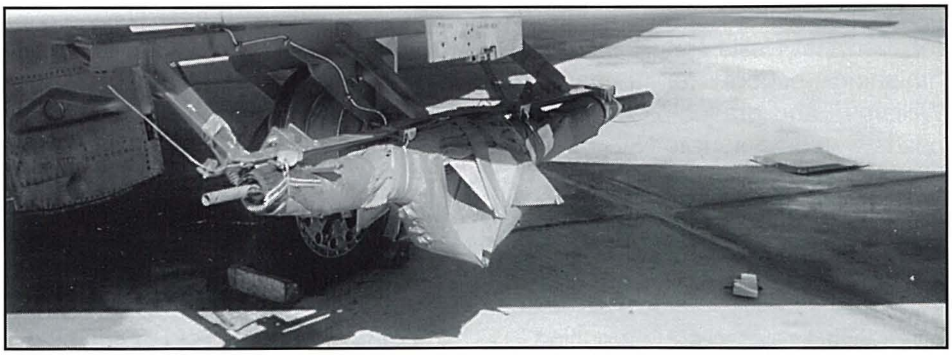
In addition to the engine problems mentioned earlier, problems in the armament and fire control systems were detected that required extensive modifications so that the aircraft could effectively be used as a gunnery trainer. Modification of wing aircraft from the fixed wing leading edge to a slatted wing leading edge only added to the wing's maintenance workload. There appeared to be an optimism nonetheless, as it was expected the F-86H would be a definite asset once its maintenance and logistical problems had been solved. Plans were in hand to phase out the F-86F program during April 1956 and replace it with the F-86H program.

Author's Note: Up to this point in the wing's historical records, no mention had been made of F-86H Block 1 aircraft actually being assigned to the wing. However, the records regress, indicating that some of the F-86Hs assigned to the wing were to come from Clovis AFB (now Cannon AFB) but deliveries were delayed because Clovis hadn't received its quota of an improved version of the F-86H. Based on data the author recorded in a unit assignment table he created from information in official aircraft record cards, Clovis was awaiting delivery of Block 10 aircraft to replace the 312th FBG Block 1s. The Clovis wing's 474th FBG had transitioned to Block 5 F-86Hs but had never had the Block 1 version. The problem, therefore, was that the 312th FBG hadn't received enough Block 10 airplanes to allow it to release the Block 1 machines slated for delivery to Nellis. What remains unclear is which of the Nellis squadrons actually got Block 1 aircraft, though the author speculates it was probably the 3598th CCTS.

J73 engine turbine failures, which caused the grounding of 32 of the wing's 86 F-86Hs, continued to be a problem for the wing because replacement engines weren't available. As a result, 32 F-86Hs went into temporary storage until new engines arrived, which they did in December 1955. While the arrival of the engines brought relief to the wing, other problems arose that essentially negated the gain the newly arrived engines should have provided. There was an extreme shortage of 20mm ammunition. There were three different versions of the J73 engine in use on base, complicating the logistical support situation. Aircraft support equipment was not available in sufficient amounts to meet maintenance unit needs. The J73 engine starters were in short supply and many other items were backordered with some having delivery dates as far out as one year.

Supply problems affected F-86H in-commision rates to such an extent that the percentage of planes out of commission for lack of parts went as high as 40% during the summer of 1955. The arrival of the J73 engines brought the out-of-commission rate down to 10% in December. Just how bad the maintenance situation was is most easily seen by examining the chart below.

Month	Total Hours Flown	Average # Aircraft Possessed Per Day	Average # Aircraft In Commission Per Day
July	600	70.0	16.0
August	777	70.0	15.0
September	402	70.1	10.3
October	581	72.7	13.5
November	No Figures Shown	No Figures Shown	No Figures Shown
December	398	80.9	17.8



At left, 3595th CCTW F-86H-10, 53-1353, in flight with a target tug pylon on the left wing. (via B. Esposito / Lionel Paul collection)

The introduction to the history of the 3595th CCTW for the period 1 January to 30 June 1956 sheds light on why supporting the F-86H had turned into such a burden for the wing. Historian Ruth Whitaker writes:

> **".... The Air Force contracted for only three to four hundred Hs before shifting emphasis to the Century series of the Sabrejet (F-100). A contract was not negotiated for replacement J73 engines. The Table II requirements for spare parts was not accurately estimated in advance. Since F-86s were no longer the top fighters, the H had not received the necessary backing to eradicate these supply deficiencies."**

Early in 1956, the flow of students entered into the F-86H program was reduced to the point where it corresponded to the number of aircraft that would be available for training. A buildup in student production had been planned for the summer of 1956, but was cancelled when it became clear that the neccessary aircraft utilization couldn't be achieved.

The situation had deteriorated to the point that Nellis AFB officials determined the most practical way to restore the combat crew training program to its normal student load was to discontinue use of the F-86H in this role. After discussions between representatives from Headquarters USAF ATC and CTAF, which took place in July, the agreement was reached that Nellis should become a "finishing school for Luke and Williams," and graduates from those bases would be sent to Nellis for 30-hours of flying in the F-100. Initial projections placed the F-86H in the first stages of phase out in September 1956. Meanwhile, in February, the 110 hour F-86H program resumed, albeit with a revised course outline.

Nellis F-86Fs were being transferred to Williams AFB during this period, and F-86Hs were coming in from Clovis and directly from the North American Aviation plant.

A new split course was implemented, starting with Class 56-H in April, and replaced the 110 hour course that had been used by the F-86H exclusively. The new split course called for 10 hours in the T-33 (as in the old split course). 70 hours in the F-86H and 30 hours in the F-100. A significant change in the course outline came, too, in that emphasis shifted away from a minimum amount of total flying time to a minimum number of effective training sorties. Also, in April the 3525th CCTS converted to the F-86H with the responsibility of training fighter weapons instructors and conducting field officer courses.

Another change in the course came in June as a result of non-availability of 20mm ammunition. Air-to-air sorties were reduced from 14 to 10 per student and camera gunnery was substituted for actual live firing of the guns. Continued problems supporting the F-86H would cause Classes 56-H and 56-I to graduate with approximately 85 hours of combined T-33 and F-86H time and no F-100 time at all.

The Fighter Weapons Squadron, 3525th CCTS, suffered as well from problems with the F-86H. Having converted to the plane in April 1956, the fighter weapons classes began to feel the impact of the maintenance problems the other squadrons endured. Flying schedules couldn't be met and the impact was first seen when Fighter Weapons Instructor Class 56-BG graduated in late June with each student having flown 18 hours less than the course outline called for.

The irony of the F-86H's use by the 3595th CCTW is that it showed such great promise when first evaluated by the TR&D section of the wing. Supervisors and instructors alike "considered the F-86H to be one of the best fighter aircraft ever built." The plane outperformed earlier F-86E and F-86F Sabres utilized by the wing and excitement ran high until the inability to maintain sufficient numbers of the plane in-commission manifested itself.

Not surprisingly though, some fear had arisen some two years before when word first filtered down to the wing that the F-86H was to be assigned. Realizing that relatively few of the airplanes had been built and that these were already being overshadowed by the new Century Series of fighters, base managers realized logistical support for the plane wouldn't be a high priority and this would make maintaining the airplane difficult. Their fears would prove to be well-founded once the plane was assigned to the wing.

The chart below shows the hours the F-86H was required to fly versus hours actually flown during the first half of 1956.

Month	**Hrs Flown**	**Hrs Required**
Jan.	**601**	**600**
Feb.	**1010**	**865**
Mar.	**1497**	**1298**
Apr.	**2123**	**2612**
May	**2202**	**2700**
Jun.	**2502**	**3100**

As a point of comparison, during the first six months of 1956, the F-86Hs in the wing required an average of 23.1 direct labor man hours per flying hour, compared to 17.5 man hours expended on the F-86F. In fairness, the required man hours per flying hour to keep the F-100A in the air was 34.45. The F-100A had its share of bugs to work out and these problems had an impact on the associated training programs within the wing.

Compounding the problem of maintaining the F-86H was the discovery that the Table II, which lists parts and quantities needed to maintain the plane, was 54% in error. As a result, essential parts weren't available at supply depots and the maintenance units had to wait for extended periods while parts were made and put into the supply system. As mentioned before, this could take up to a year.

There were problems with the airplane itself. Skin cracks and loose rivets were found in the aft fuselage section, just forward of the horizontal stabilizer. Considerable work was done on the elevators, repairing skin cracks and replacing hinges. The F-86H had to go through a periodic inspection after 50 flying hours, whereas the F-86F required such an inspection after 100 flying hours. Problems with the engine were many. Fuel controllers failed, hot starts were too common, turbine cases warped and many engines used excessive amounts of oil.

By the second half of 1956, plans were being developed to phase the F-86H out and introduce the F-100, to a greater extent, into the training program at Nellis. The split-phase training program would have a new meaning as student pilots would complete F-86F training at other bases and come to Nellis for F-100 training. In addition, the F-100F, a two-seat transition training version of the F-100D single-seat Super Sabre, was planned for introduction into the training program. By 17 December 1956, Nellis was notified that it would receive 60 F-100Fs, though it wasn't clear when the planes would be delivered or whether they'd be employed in the Fighter Weapons School program. There had, up to this point, been discussion regarding continued use of the F-86H in that program.

Continued problems with maintaining the F-86H brought about the decision to transfer pilots, who were to train in the F-86, to Williams AFB and Luke AFB to train in the F-86F, beginning with Class 56-R. Upon completion of Phase I of the two-phase program, at the aforementioned bases, the students would return to Nellis for Phase II training in the F-100. Classes 56-N through 56-Q would remain at Nellis and complete their training there. This was done to facilitate implementation of the new split-phase program. The impact of the continued use of the F-86H on the final classes to fly that airplane in training can be seen in the chart below.

Class No.	**Shortage of Hrs. in F-86H**
56-L	**29 hours**
56-M	**23.6 hours**
56-O	**43 hours**
56-P	**44.9 hours**
56-Q	**36 hours**

The above classes were part of the split-phase (F-86H/F-100A) program. Records indicate there were single-phase courses for pilots sent to Nellis to train exclusively in the F-86H. Two classes were graduated prior to the course being dropped in July 1956. Class 56-I graduated with an average of 27.7 short flying hours on the F-86H.

Above, 3395 CCTW F-86H-10 53-1520 at Nellis AFB. (via Dave McLarren) Bottom, unmarked 3395th CCTW F-86H-10 53-1506 at Nellis AFB. (via Dave McLarren)

In the Fighter Weapons School, Class 56-MGF and subsequent were cancelled. The last two classes to go through this school, utilizing the F-86H, graduated with less than the programmed number of flying hours. F-86H training ended at Nellis on 21 December 1956.

More than anything else, engine problems kept the F-86H from being the effective training aircraft it could have been at Nellis. The table at the top of the next page indicates just how bad the problem had become toward the end of 1956.

The magnitude of the mainte-

nance problems associated with the F-86H becomes clearer when the table at right is reviewed. The period is the last half of 1956.

Date	F-86H's Assigned	Number AOCP For Lack of Engines	Percent AOCP For Lack of Engines
15 August	Not Indicated	38	Not Indicated
12 September	155	41	26.4
31 October	152	38	25.0
14 November	Not Indicated	49	Not Indicated

Month	Aircraft Assigned	Average Number of Aircraft Possessed	Average Number Of Aircraft In Commission	Percent Of Aircraft Out Of Commission (For All Reasons)
July	154	151.2	33.3	78.1
August	156	153.9	36.3	76.4
September	156	155.0	14.1	90.9
October	142	154.0	36.3	76.4
November	100	121.7	29.7	75.6
December	72	80.7	23.6	70.8

The reader should bear in mind that these F-86Hs were being utilized in the training environment and as such maintenance requirements didn't get the same kind of priority they would have had, had this unit been a first line combat organization. This point is made because as dismal as the record of the F-86H's service with the 3595th CCTW was, it doesn't reflect the maintenance situation for the airplane throughout the Air Force. The reader, therefore, should not come to the conclusion that the F-86H was a bad airplane. It wasn't, as its service with first line combat units made clear. Its service with the ANG in later years would continue to prove the airplane was a good machine.

Perhaps the best way to summarize what happened with the F-86H while serving with the 3595th CCTW is to say it was the victim of bad decisions. Mind you, this is hindsight talking. But as was indicated earlier in this chapter, the high level managers at Nellis had some misgivings about utilizing the F-86H long before the first example arrived on base. They instinctively knew that logistical support could prove to be a major problem, given the small number of airplanes manufactured and the fact the F-86, as a major fighter type, was being overshadowed, even at that stage, by the new Century Series of fighters. Congress wasn't going to allocate money to an airplane that was on the way out, especially where this would draw money away from newer and more promising models coming into the inventory.

True, second-line fighters have been used in the advanced training role for years and the use of the various F-80, F-84 and F-86 models bears this out. There's nothing wrong about utilizing such planes that way. But the F-86H was, in 1955-56, still relatively new and all of its bugs hadn't been ironed out completely. What's more, its time in service with the active duty units wasn't projected to be long. In short, it just didn't have the priority in the logistic community that other aircraft types had and ultimately that hurt it when it was assigned to ATC.

Below, F-86H-10 53-1298 on an early test flight, prior to assignment to the #595th CCTW. (North American)

KNOWN AIRCRAFT ASSIGNMENTS BY SERIAL NUMBERS

312th FBG: 52-2003/2004, 52-2007, 52-2009/2023, 52-2025/2031, 52-2033, 52-2035/2036, 52-2038/2071, 52-2073/2089, 52-2100, 52-2102/2103, 52-2105, 52-2107/2111, 53-1231, 53-1236/1237, 53-1239/1241, 53-1247/1248, 53-1264, 53-1267/1268, 53-1272, 53-1279/1280, 53-1282/1284, 53-1289/1294, 53-1296, 53-1299, 53-1301, 53-1304/1305, 53-1309/1310, 53-1312, 53-1314, 53-1316/1317, 53-1319/1320, 53-1322/1324, 53-1328/1340, 53-1342, and 53-1348

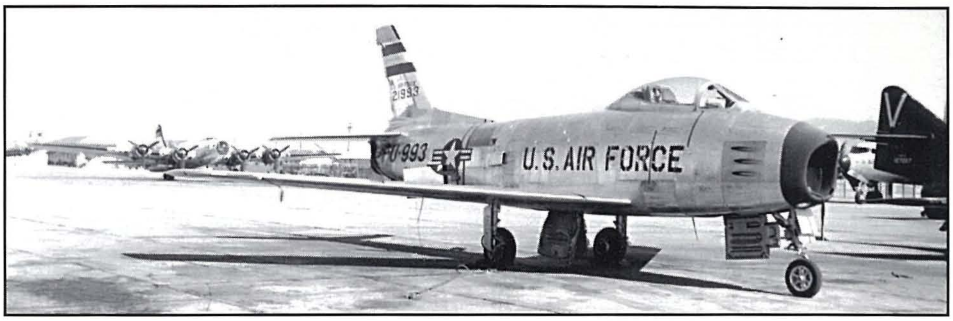
474th FBG: 52-2091, 52-2097, 52-2099/2107, 52-5729/5753, 53-1242/1262, 53-1264/1266, 53-1268/1271, 53-1273/1278, 53-1285/1287, 53-1295, 53-1297, 53-1303, 53-1311, 53-1313, 53-1315/1316, 53-1318, 53-1341, 53-1346, and 53-1350/1351

50th FBW: 53-1273 (author recalls posible photo in 50th FBW colors, but record card does not support this), 53-1347 (assignment to the 50th is in question), 53-1405, 53-1407, 53-1412, 53-1414/1422, 53-1424/1493, and 53-1496/1500

83rd FDW: 52-2108/2111, 52-2113, 52-5729, 52-5732, 52-5734, 52-5738, 52-5741/5742, 52-5750 (assignment to the 83rd is in question), 52-5752, 53-1231/1237, 53-1239/1241, 53-1245/1246, 53-1248, 53-1250/1251, 53-1259, 53-1261, 53-1265, 53-1268, 53-1272, 53-1274, 53-1277/1282, 53-1284, 53-1289/1293, 53-1299 53-1301/1302, 53-1304, 53-1308, 53-1310, 53-1312/1314, 53-1316/1317, 53-1320, 53-1322/1323, 53-1327/1330, 53-1333/1335, 53-1337, 53-1339/1340, 53-1342, 53-1346, 53-1348, 53-1350, and 53-1391

413th FDG: 52-2107/2124, 53-1229/1241, 53-1263, 53-1267, 53-1272, 53-1279/1284, 53-1289/1294, 53-1296, 53-1299, 53-1302, 53-1304/1305, 53-1307/1310, 53-1312, 53-1314, 53-1317, 53-1319/1340, 53-1342, 53-1348 and 53-1409

3595th CCTW: 52-1977/1978, 52-1984, 52-1987, 52-2001/2013, 52-2015/2016, 52-2020/2023, 52-2025, 52-2029, 52-2033, 52-2035/2041, 52-2045/2050, 52-2057, 52-2072, 52-2075, 52-2084/2086, 52-2088/2089, 52-2106/2108, 53-1231, 53-1289, 53-1298, 53-1300/1301, 53-1306, 53-1312, 53-1339, 53-1343/1345, 53-1347, 53-1349, 53-1352/1362, 53-1364/1379,



3600th CCTW (LUKE AFB): 52-1987, 52-1992, and 53-1247

3320th TTW (Amarillo, TX): 52-2032, 52-2034, 52-2086, and 53-1294 (used for ground instructional training)

3615th FTW: 53-1300

3040th AST SQ: 52-2017-18, 52-2056, 52-2068, 52-2070, 52-2079/80, and 52-2087

3555th CCTW: 52-2080

405th FBW: 52-2076

3415th TTW (Lowry AFB): 52-1990, 52-2083, and 52-2099 (used as a ground instructional tool for technical training)

3640th PTW: 52-2028

3200th Test WG (Eglin AFB): 52-1989, 52-1995, 52-1997, 52-1999, and 52-2011

354th TFW 52-1996

6510th ABW: 52-1979/1982
3560th PTW: 52-2016

3520th CCTW: 52-2006 and 52-2103

3530th PTW: 52-2026

3640th PTW: 52-2028

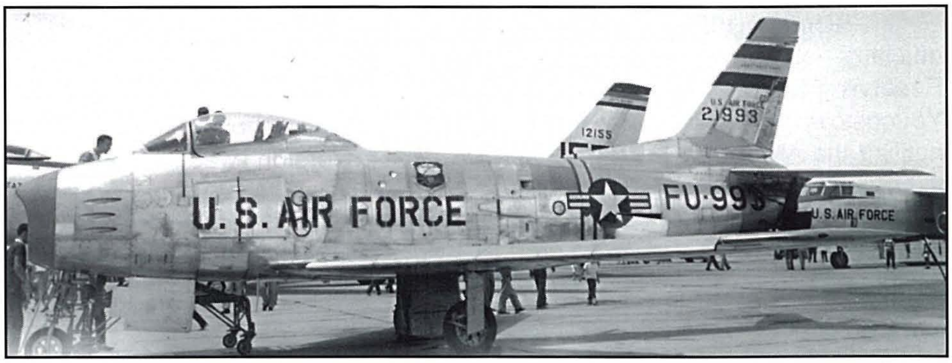
3310th TTW: 53-1343

4925th Test Group: 52-1984, 52-1992/1994

4050th P Sq*: 52-2017

* Efforts to identify just what a "P Sq" is have been fruitless; likewise with what an "AST Sq" is.

Above and below, F-86H-1 52-1993 was assigned to the 4927th Test Squadron, 4825th Test Group (Atomic), Air Force Special Weapons Center 1955-57. Intake seems to be red and tail and fuselage stripes seem to be red and yellow. (Steve Brown)



Det. 1 2234th AIR RESERVE FLYING CENTER

The unit began operations in January 1957 and established the 26th FBS (Reserve), Ohio's only F-86H Air Force Reserve Squadron. The 26th was a component of the 89th FBW located at Bedford, MA.

Plans had been underway since 1952 to activate a reserve squadron at Youngstown and discussions with local city officials resulted in a number of questions being raised. There were questions about how the presence of the squadron would affect the city and the civilian aircraft operating at the airport. Discussions continued, with some controversy, through 1953 and 1954. Tensions mounted in mid-1954 when the airport manager and the mayor of Youngstown opposed the expansion of Youngstown Municipal Airport to meet the needs of the Air Force Reserve squadron, on the grounds that such expansion would limit growth in airline and business flying. Opposition continued to grow but by October 1954 the mayor had resigned himself to the fact that the Air Force would establish an Air Force Reserve Flying Center at the airport.

In February 1955 the Air Force officially announced a 28-plane Reserve FBS would be based at Youngstown Municipal Airport and notified the Army Corps of Engineers to begin drafting plans and requesting bids for the $2,000,000 worth of construction that would be required. Construction of the required warehouse began on 12 December and was completed by October 1956. Construction of the hangar began in May 1956.

The commander for the 2234th Air Reserve Flying Center was chosen in November and the unit was offically activated in January 1957. Personnel continued to arrive, but it wasn't until February that the first airplane, a C-45, arrived. By March, the necessary administrative equipment began arriving and the unit's first T-33 arrived on the 18th. In April, the 26th FBS was activated and two more T-33s were delivered, but the necessary tools to maintain the trainers were still not available. Two additional T-33s arrived in May but an insufficient number of officers and maintenance personnel continued to plague the unit, to the extent that by June it was critical. By then the unit had a C-45, seven T-33s, and no F-86Hs.

In the beginning of the 1958 fiscal year, a major change swept through the Air Force Reserve. The decision was made to convert all Air Force Reserve flying units to the troop carrier mission. By the time the change was directed to the 26th FBS, it had received three F-86H aircraft and had ten T-33s and a C-45. The change called for the 26th FBS to be deactivated and the 757th Troop Carrier Squadron, then stationed at Byrd Field, VA, to be relocated to Youngstown Municipal Airport. By September 1958, the jet aircraft were being reassigned and in October the first C-119 arrived. It's not known whether any of the F-86Hs were ever painted in 26th FBS colors.

2473rd AIR RESERVE FLYING CENTER

Operating from General Mitchell Field, Milwaukee, WI, the 2473rd Air Force Reserve Flying Center was slated to convert the 438th FBS to the F-86H. As with other AFRES units, the conversion wasn't completed. Training was to be conducted from mid-August to the first of September, but those plans were cancelled as a result of instructions from the Continental Air Command. Although not documented, most likely the unit transitioned to C-119s as did the other Reserve units that were in the process of transitioning into the F-86H.

2596th AIR RESERVE FLYING CENTER

The 2596th Air Force Reserve Flying Center was tasked with converting the 448th FBW, stationed at Hensley Field, Grand Prairie, TX, from the F-80 Shooting Star to the F-86H Sabre. The 448th was known as the Lone Star Wing. The first squadron scheduled for conversion was the 713th FBS located at Davis Field, near Muskogee, OK, and this was handled by Detachment #1. A second detachment was planned to be set-up at Barksdale Air Force Base to support the conversion of the 712th FBS, but that was expected to take place after the close of the January-to-June 1957 reporting period.

The arrival of the first two F-86H aircraft on 6 January 1957 brought excitement to the wing and signaled the beginning of deliveries to the AFRES. The 448th FBW had the responsibility for defending a circular area having a 300-mile radius around the Dallas-Fort Worth area. Prior to the arrival of the Sabres, the wing's primary combat aircraft were F-80 Shooting Stars supplemented by T-33 Shooting Stars.

From 4 February to 15 April, Hensley Field was host to the F-86H Indoctrination Course, set-up to train instructor pilots and aircraft mechanics. Students from the 1st, 10th, and 14th Air Forces of Continental Air Command were programmed to attend the school and this essentially meant that all instructor pilots and mechanics from AFRES units slated to make the conversion from the F-80 to the F-86H were to come through the course at Hensley. A total of 14 F-86H Sabres were available for use by the school.

In April, the Sabre School was moved to Memphis Municipal Airport. The idea was to make the school more accessible to units of the AFRES that were to undergo summer encampment with their jet fighters at Memphis.

Little else is known of the 2596th other than the fact that, like the other organizations within the AFRES, its training activities asociated with the F-86H were terminated and its part of the conversion program came to a close.

2589th
AIR RESERVE FLYING CENTER

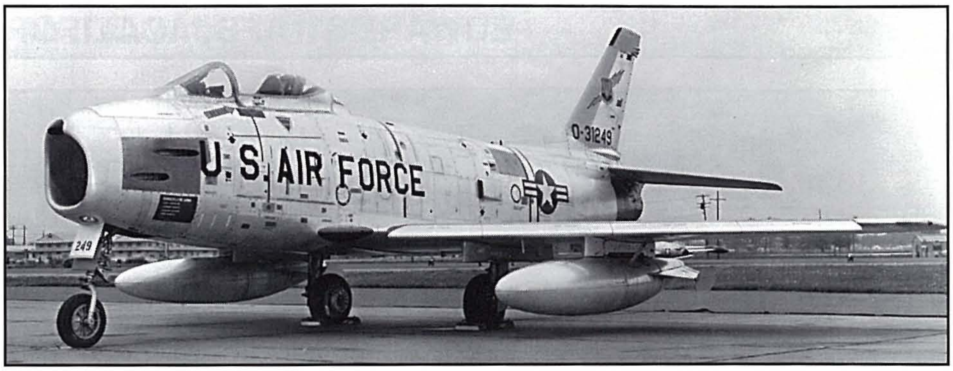
This unit was to have participated in the conversion process as well but never got so much as one F-86H to replace its F-84E Thunderjets. The unit received C-119s before the first Sabre could be delivered.

2584th
AIR RESERVE FLYING CENTER

The unit's written history picks up in the first part of January 1957 when the 2584th had two major responsibilities to carry out. First was the support of the Sabre Indoctrination Course which provided transition to the F-86H to the center's own personnel and to those of five reserve FBWs. In addition, it had to close down support of the new Det. #1, 2584th AFRC and the 50th FBS, both organizations then located at New Orleans, LA.

The 319th FBW (Reserve) made the change from the F-84E to F-86G on 17 March with the first two F-86Hs arriving on 13 March. Its mission was the air defense of Memphis and the mid-south sector of the country. To aid the 319th, the 3497th Mobile Training Squadron, which sent a mobile training detachment to Hensley Field, Grand Prairie, TX, moved that detachment to Memphis.

The center had a major job to accomplish as Air Reserve Flying Center pilots and pilots from numbered Air Force units had to be trained to function as instructor pilots for F-86H transition training during active duty encampments, which were scheduled to be held from 2 June to 1 September 1957. The 319th active duty summer encampment was from 2 through 16 June.



Above, F-86H-10, 53-1249, with AFRES insignia on the tail over a yellow lightning bolt. (via Barry Miller) Below, the Pima Air & Space Museum's F-86H-10 53-1525 in AFRES markings had been assigned to the 2596th Air Force Reserve Flying Center. In the late '90s the aircraft was re-painted as a 429th FBS airplane. (Ginter)

To accommodate qualification of unit aircrews in aerial gunnery, the 319th conducted gunnery training from 21 through 24 February. The process was repeated from 29 March through 17 April and both training sessions were conducted at the Air National Guard Training Site, Gulfport, MS. Also participating in this training was the 448th FBW from Hensly Field and the 482nd FBW from Dobbins AFB, GA.

That the 2584th worked hard to build flying hours and make a successful but phased transition from the F-84E to the F-86H can be seen in the chart below which shows the draw-down in F-84E flight hours and the gradual buildup of F-86H hours.

	Jan	Feb	Mar	Apr	May	Jun
F-84E	**286**	**370**	**346**	**150**	**293**	**63**
F-86H	**none**	**none**	**10**	**154**	**337**	**767**

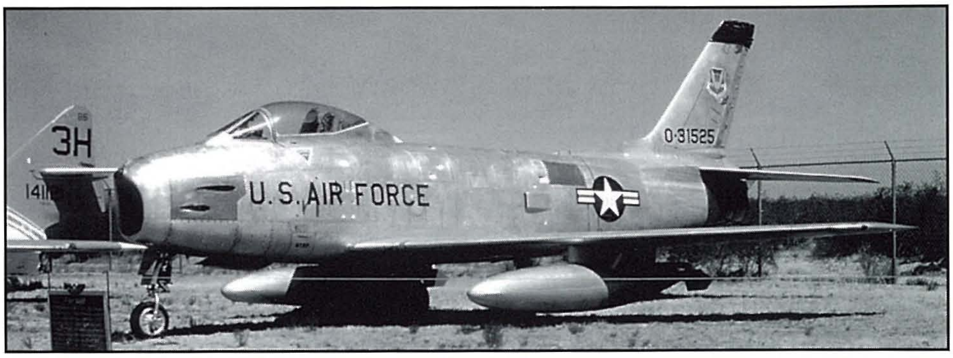
The number of aircraft assigned shifted according to the rate of transfer of aircraft both into and out of the unit. The chart below shows the number of F-84Es remained fairly steady through April, the same month the F-86H deliveries really began to accelerate.

	Jan	Feb	Mar	Apr	May	Jun
F-84E	**24**	**25**	**25**	**24**	**14**	**14**
F-86H	**none**	**none**	**2**	**15**	**22**	**33**

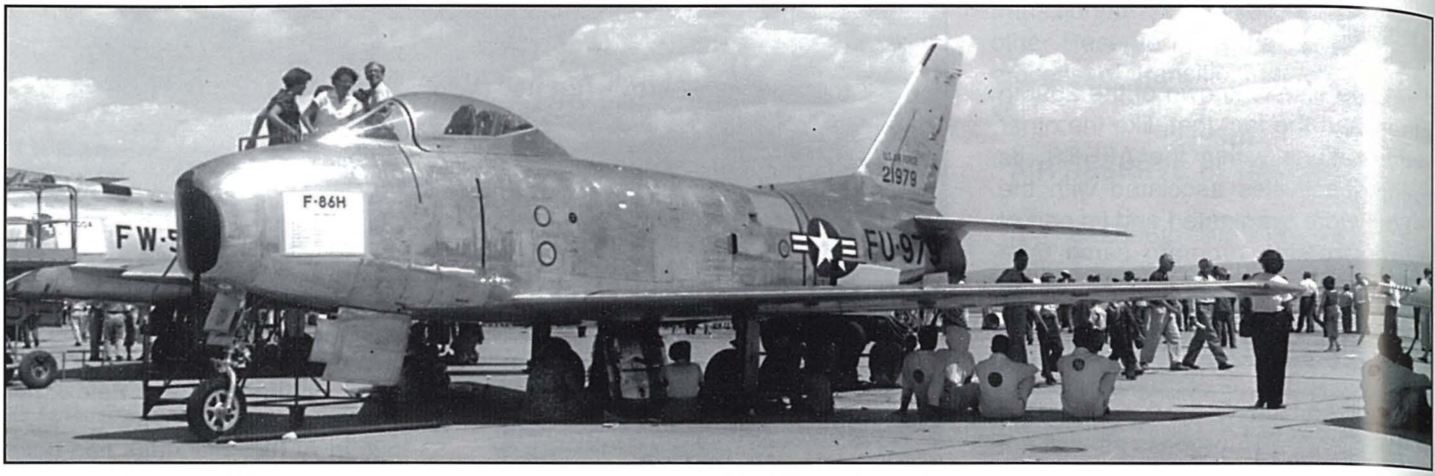
The 2584th went into the second half of 1957 providing transition training for three Reserve FBWs. The identities, home stations and periods of two week active duty encampment were:

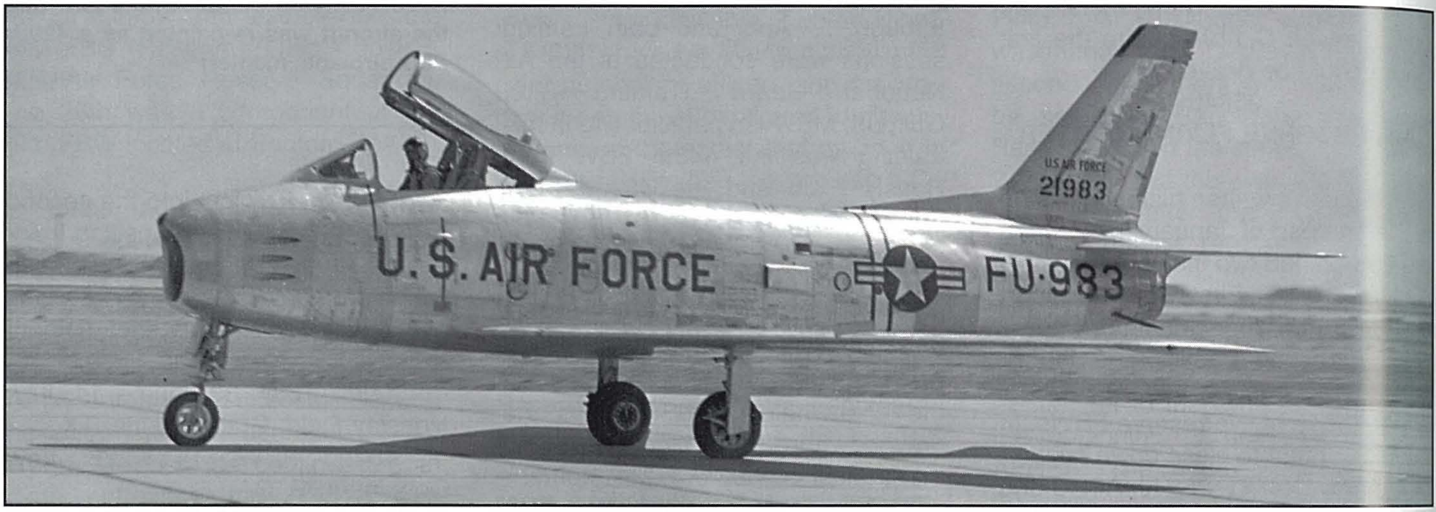
448th FBW, 30 June - 14 July, Hensley Field, Grand Prairie, TX.
482nd FBW, 14 - 28 July, Dobbins AFB, GA.
439th FBW, 3 - 17 August, Selfridge AFB, Mt Clemens, MI.

The 438th FBW, from Milwaukee, WI, was scheduled to arrive for an encampment which was to last from 17 August through 1 September, but this plan was cancelled, presumably because the plan to convert the Reserve FBWs to C-119 cargo planes was already in motion. The change of mission from FBW to TCW, affecting the Memphis-based 319th, went into effect on 16 November.

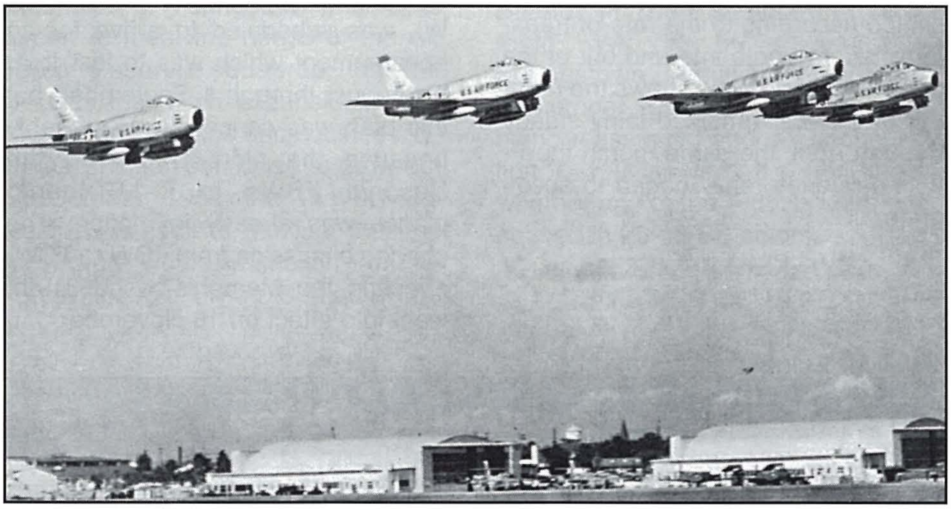


EDWARDS AFB, CALIFORNIA





3200TH TEST WING EGLIN AFB, FLORIDA



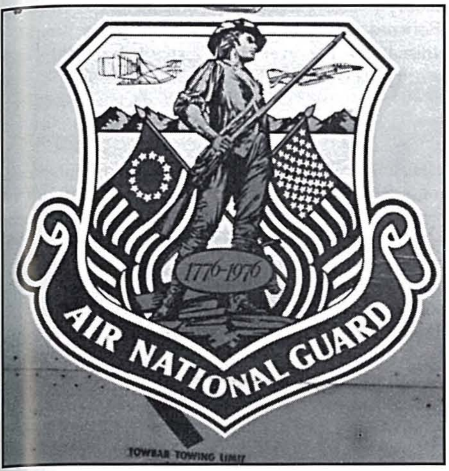
At top, F-86H-1 52-1979 at Edwards AFB on 19 May 1955. Aircraft was later assigned to the 6510th ABW. (William Swisher) Above, F-86H-1 52-1983 taxis during an open house at Edwards. (via SDAM) At left, five F-86Hs with napalm bombs under the wings take off from Eglin AFB in 1955. (USAF)

Much of the information related to the 3200th's use of the F-86H remains classified as what's seen here was all that was available to the author. It appears the wing was involved in Operational Suitability Testing. The abbreviation "OST" in the reports points to this.

The F-86H first arrived in August 1954. By 1 September three aircraft were assigned. On 1 October four aircraft, on 1 November five aircraft, and on 1 December five aircraft. By the end of December, nine F-86Hs were on hand. Nine aircraft remained in January and February 1955, and eight from March through June 1955.

Five F-86Hs were involved in a Firepower Demonstration on 29 July 1955 and a demonstration for the Joint Civilian Orientation Conference on 11 October of the same year.

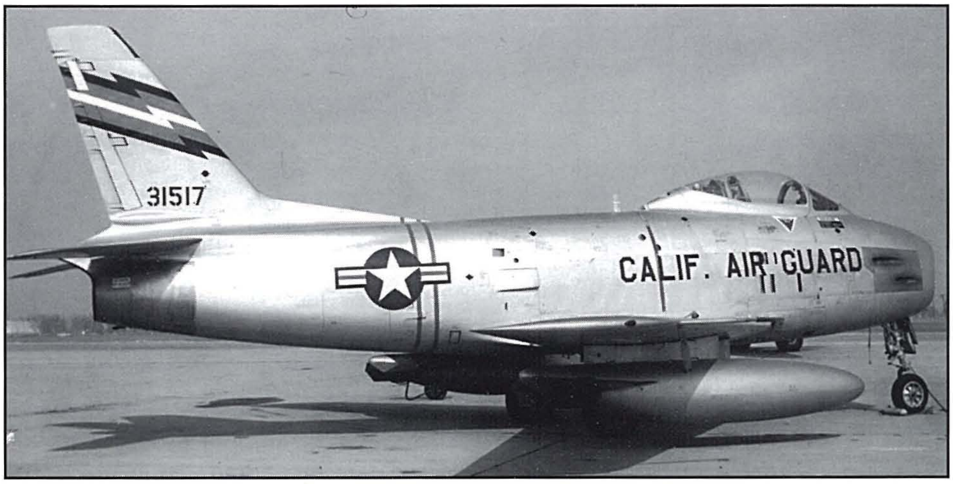
AIR NATIONAL GUARD UNITS



As was the case when I wrote the C-124 book, I found that getting real good historical data on the Air Guard units that flew the F-86H was and remains a challenge. What follows was gathered from several sources, the best was from Rene Francillon's book titled *The Air Guard*. It was part of the Aerograph series, published by Aerofax. As I understand it, after talking to the folks in-the-know at the Air National Guard Historians Office, the Air Guard has not, until recent years, been required to maintain the kind of historical records the active duty units have. As a result, only if the individual unit had someone who was interested in maintaining such records is anything known about the day-to-day activities of many of these squadrons. Strangely, while historical data related to the ANG F-86H units is hard to gather, photos of ANG F-86Hs are available in abundance. This is in stark contrast to active duty units, where information is available but photos are not

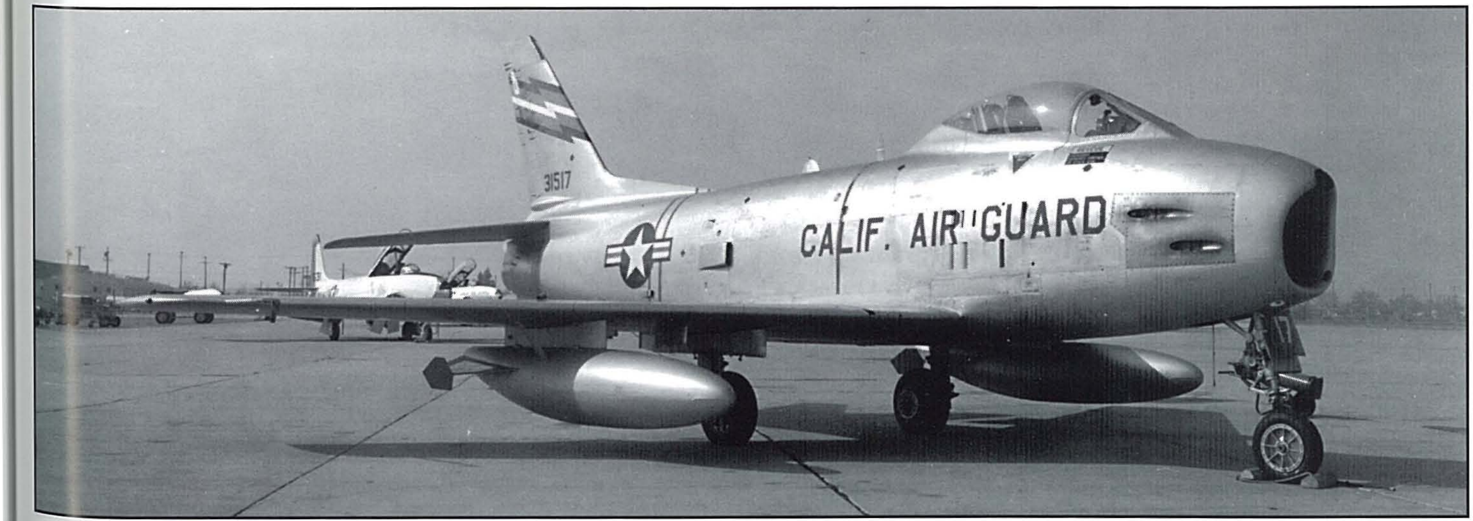
What follows is a brief overview of the ANG units that flew the F-86H.

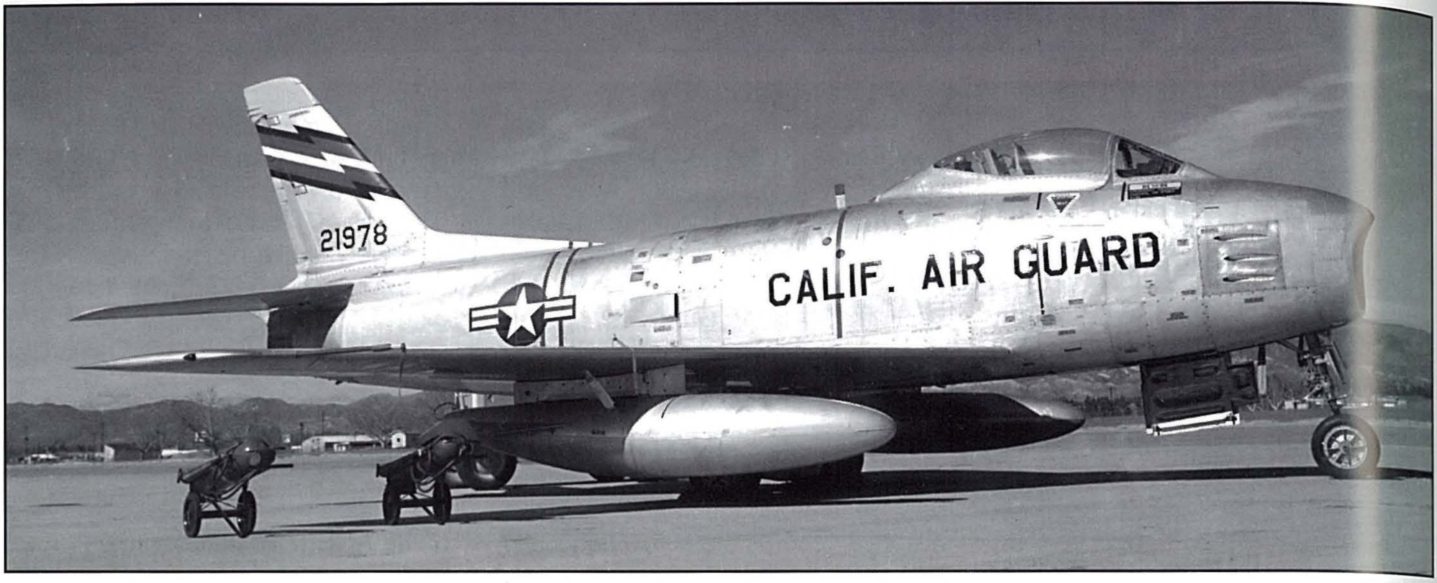
CALIFORNIA ANG, 115th and 195th TACTICAL FIGHTER SQUADRONS

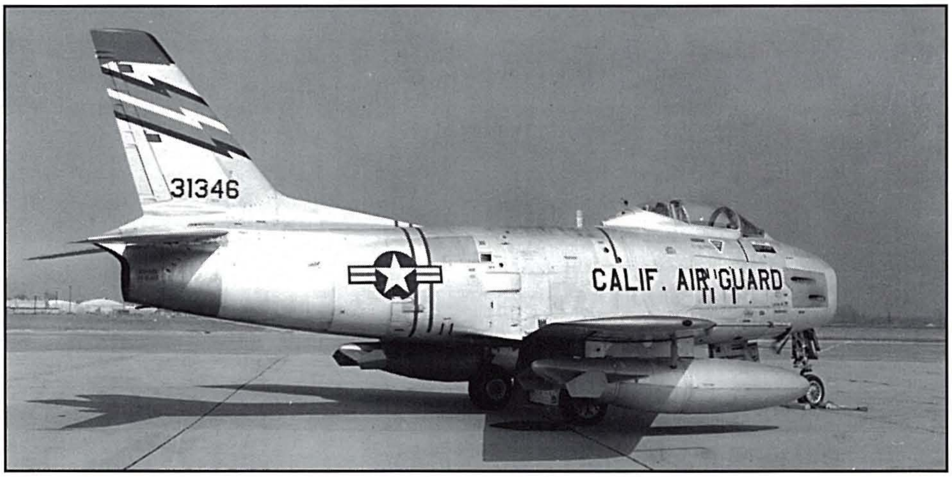


Operating from Van Nuys, CA, both the 115th and 195th Tactical Fighter Squadrons (TFS) operated the F-86H briefly from early-1959 through January 1960. Prior to this the units had flown F-86A Sabres. In January 1960, the units gained a new designation and new aircraft when they were redesignated the 115th and 195th Air Transport Squadrons (Heavy) and were equipped with Boeing C-97C Stratofreighters.

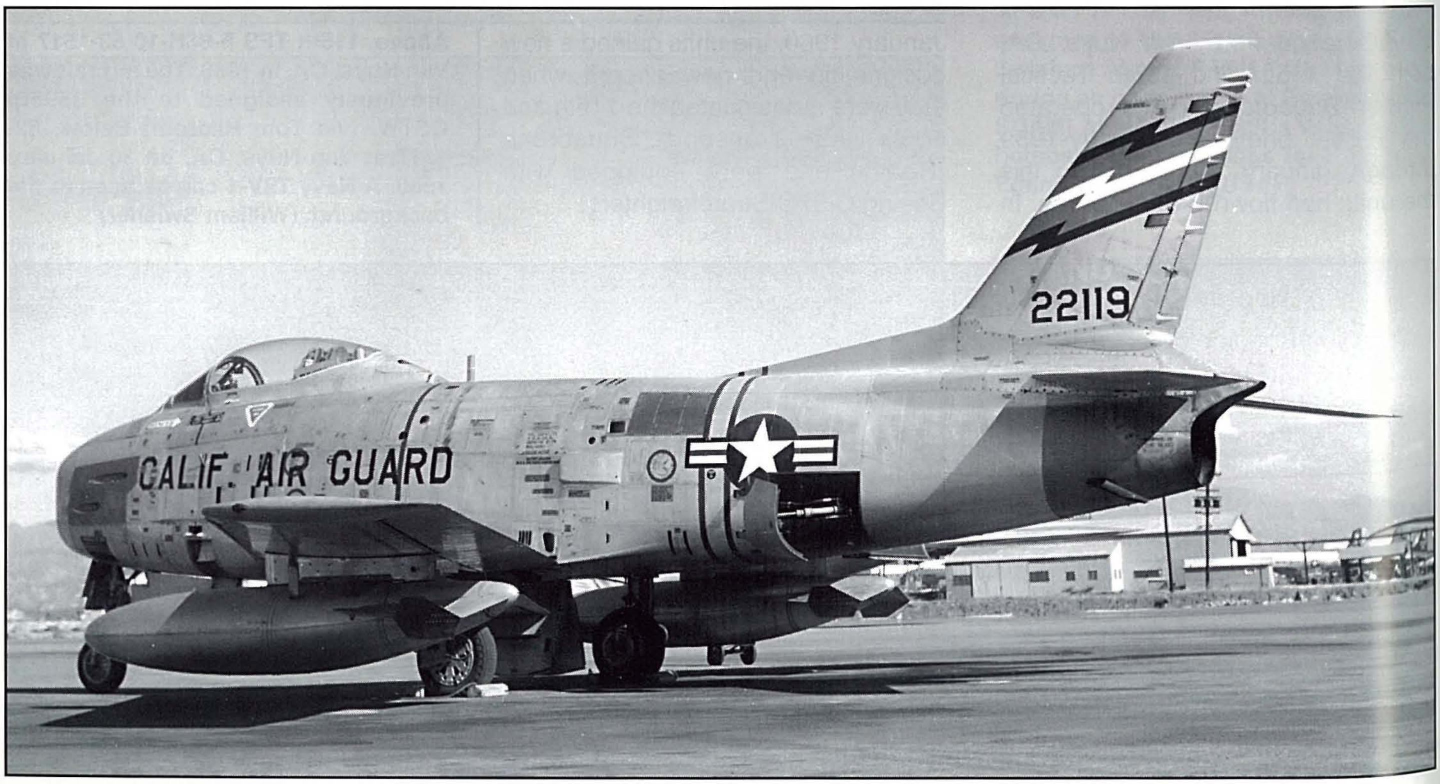
Above, 115th TFS F-86H-10 53-1517 at Van Nuys, CA, in 1959. The aircraft was previously assigned to the 3595th CCTW. (via Tom Hildreth) Below, 52-1517 at Van Nuys, CA, on 30 January 1960. A Navy T2V-1 can be seen in the background. (William Swisher)



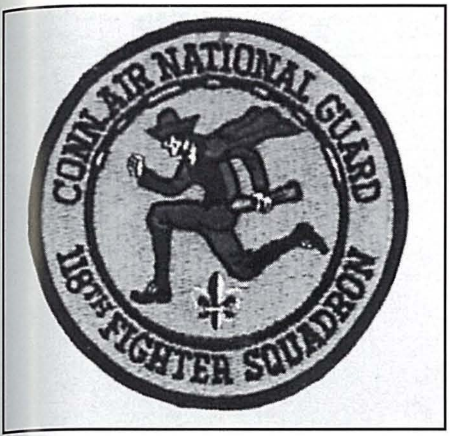




Above, Van Nuys-based F-86H-1 52-1978 from the 195th TFS was the second production "Sabre Hog" and had the dash 1's six .50 calibre machine gun armament. (Peter M. Bowers via Norm Taylor) The 195th was equipped with all three versions of the "H", the dash 1, dash 5, and dash 10. The 115th and 195th Tactical Fighter Squadron's tail flash markings were top-to-bottom: black, green, white, green and black. Fin tips were green. At left, F-86H-10 53-1346 from the 115th TFS at Van Nuys on 30 January 1960. (William Swisher) Bottom, F-86H-5 52-2119 from the 195th TFS at Van Nuys, CA, in 1960. (Peter Bowers via Norm Taylor)



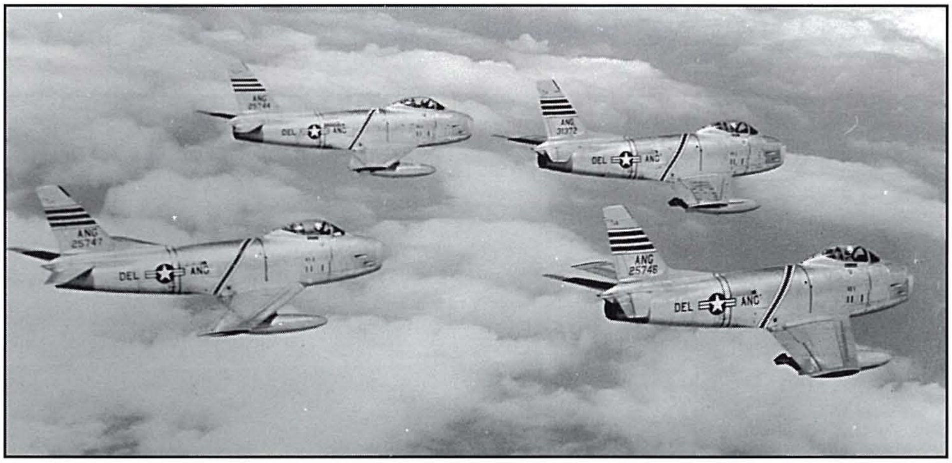
CONNECTICUT ANG, 118th TFS



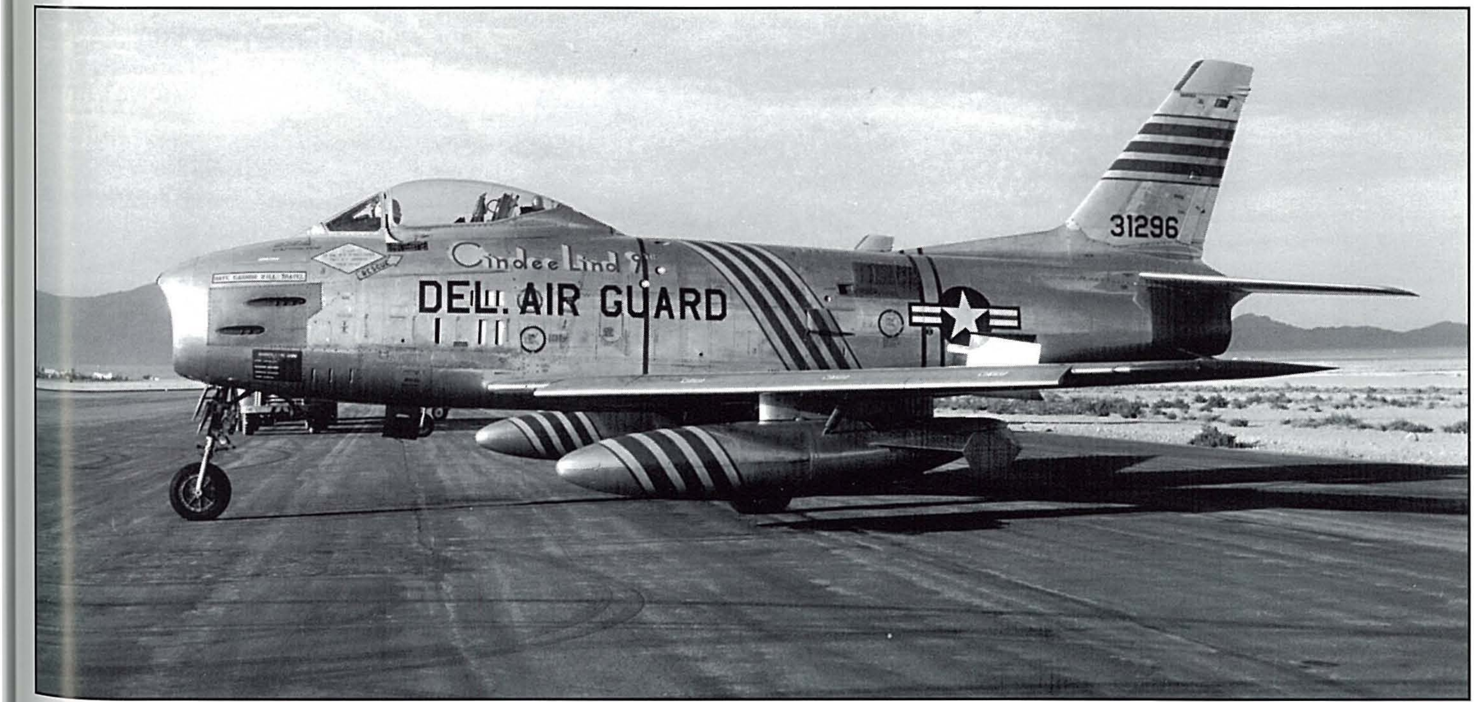
The 118th Tactical Fighter Squadron flew Lockheed F-94B Starfires from the spring of 1956 until converting to the F-86H eighteen months later. In October 1959, the squadron transitioned to the North American F-100A Super Sabre and was redesignated a Fighter Interceptor Squadron. The squadron operated from Bradley Field, Windsor Locks, CT.

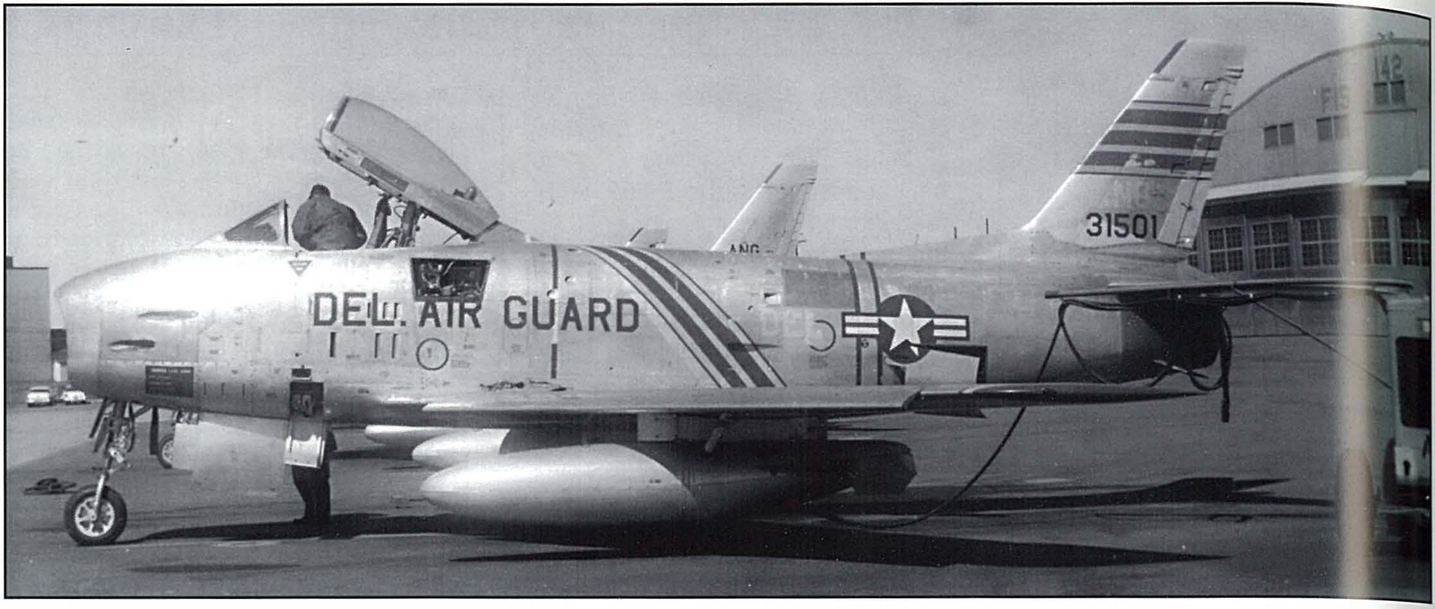
Below, F-86H-5s 52-5746, 52-5747, 52-5744 and 53-1372 in-flight. (via Dave Menard) Bottom, F-86H-10 53-1296 at Nellis AFB. Blue Cindee Lind 9th was highlighted by yellow-orange. Pilot's name was on the yellow-orange diamond. Yellow-orange stripe above cannon ports reads "Have Cannon Will Travel". A large red warning placard was below the cannon port. Aircraft was preserved at Wilmington, Delaware. (D. Olson via William Swisher)

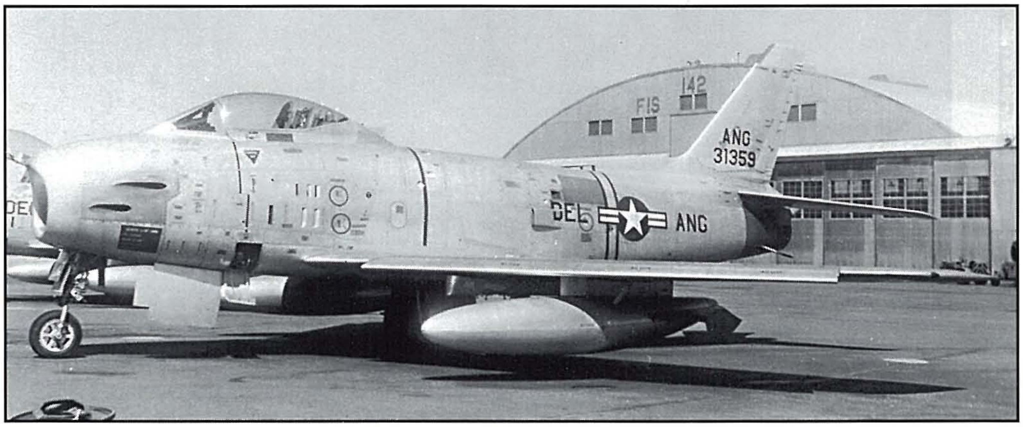
DELAWARE ANG, 142nd TACTICAL FIGHTER SQUADRON



Operating from the New Castle County Airport, the 142nd FIS was equipped with F-86E Sabres when it received the F-86H. With F-86Hs, the squadron was redesignated the 142nd Tactical Fighter Squadron on 10 november 1958. The squadron flew the F-86H until 1962 when it was reorganized and equipped with C-97F and C-97G aircraft to meet its transport squadron role.

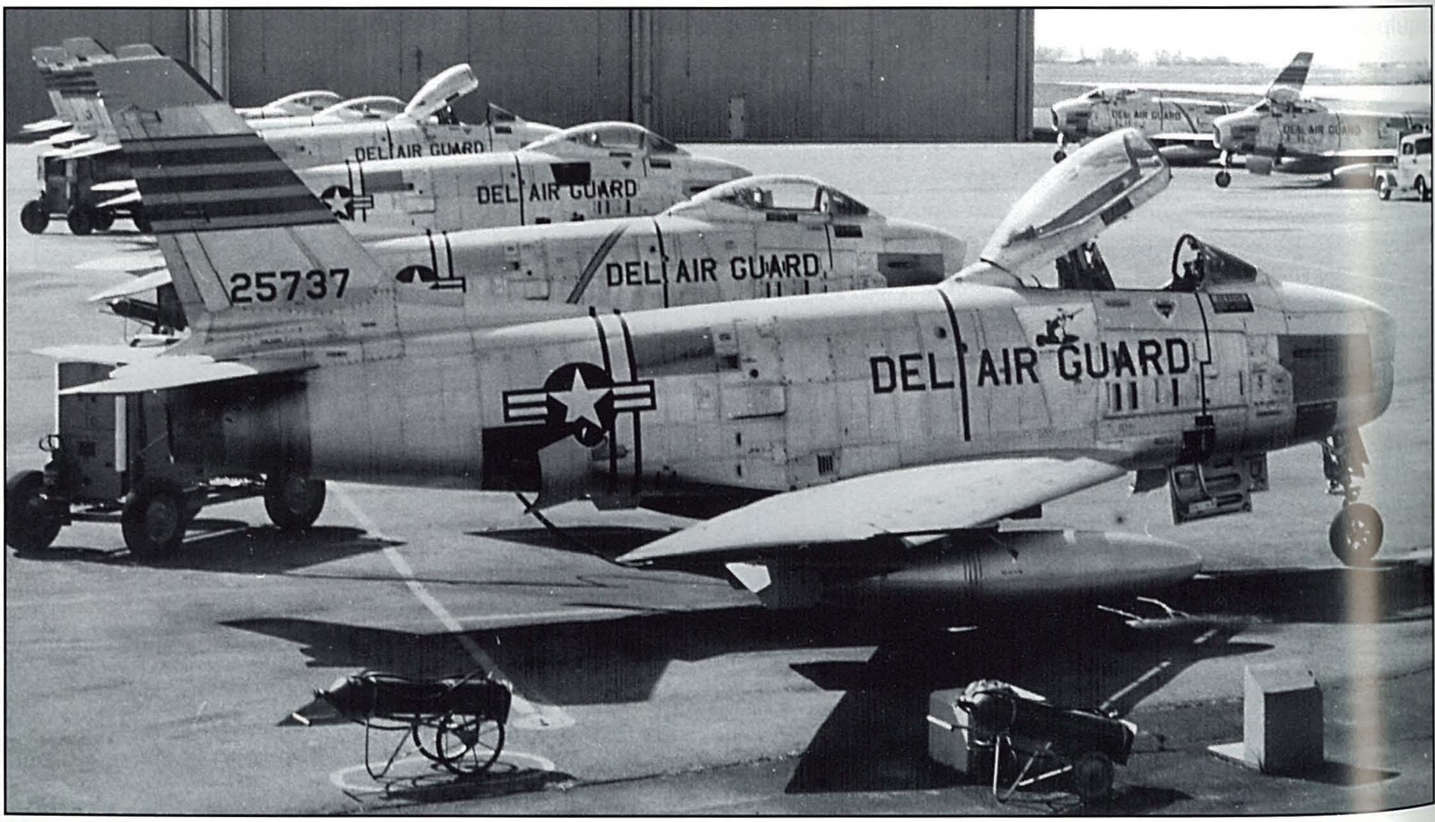




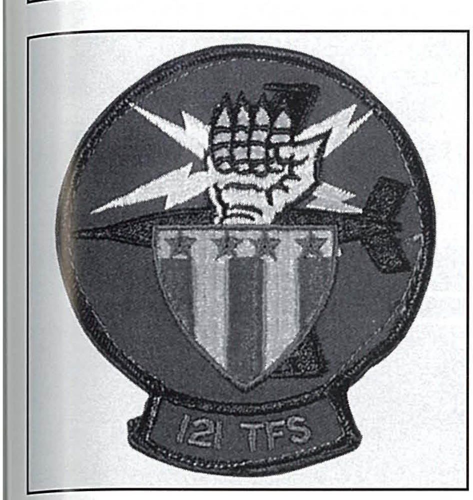


DELAWARE ANG

Above, Delaware ANG F-86H-10 53-1501 undergoing maintenance. Stripes were deep yellow-orange and black. (Tom Hildreth) At left, 142nd TFS Delaware ANG F-86H-10 53-1363 in silver lacquer and minus fuselage and vertical tail stripes. (Tom Hildreth) Below, Delaware ANG flightline showing 8 aircraft with 52-5737 in the foreground. (via Dave Menard)

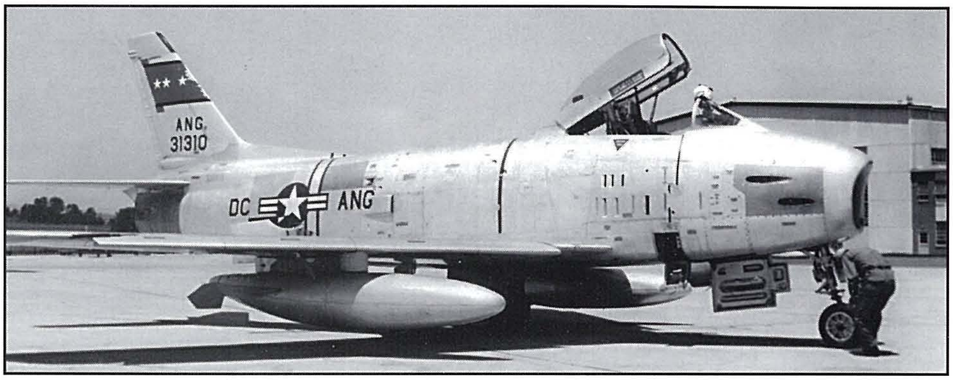


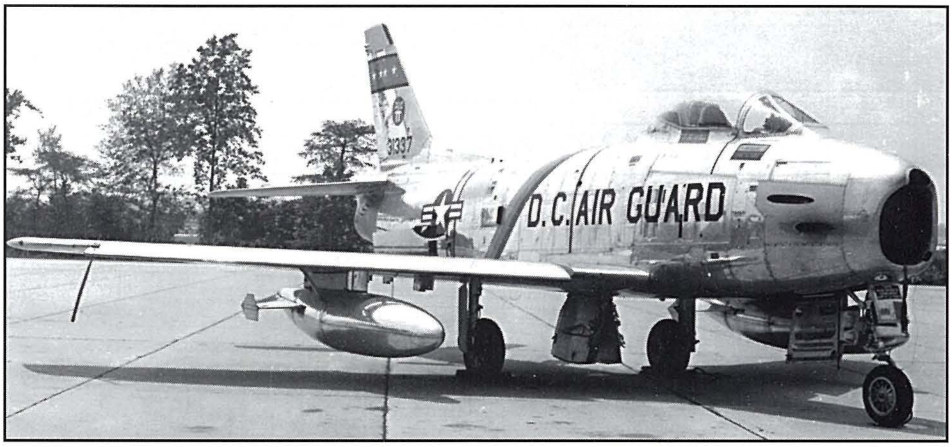
DISTRICT OF COLUMBIA ANG, 121st TACTICAL FIGHTER SQUADRON

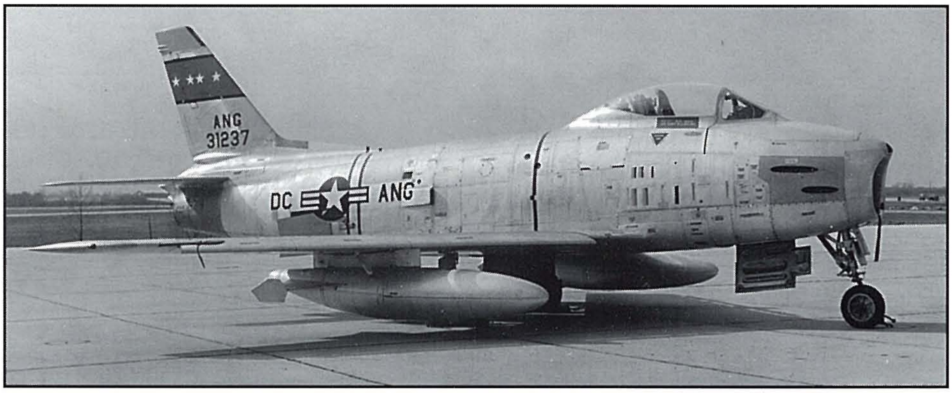


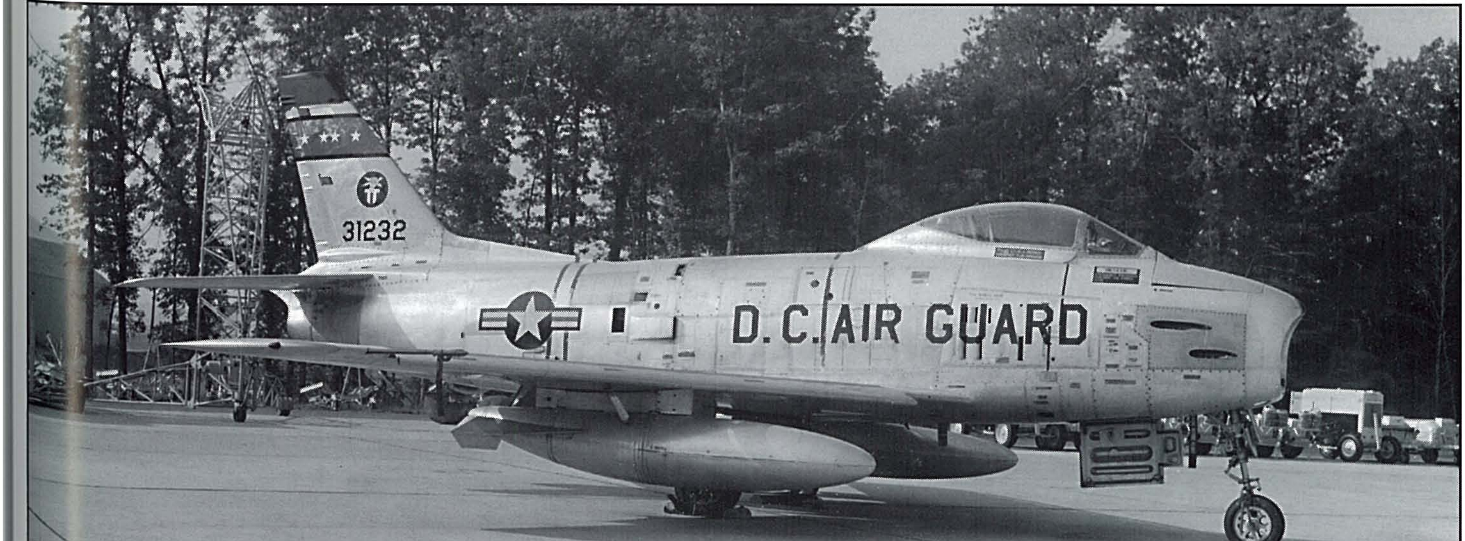
The 121st Fighter Interceptor Squadron was Flying F-86E Sabres from Andrews AFB when, in late 1957, it converted to the F-86H. The unit retained its Fighter Interceptor designation until November 1958 when it was redesignated the 121st Tactical Fighter Squadron, reflecting its being a TAC gained unit. In mid-1960, the unit converted to the F-100C Super Sabre.

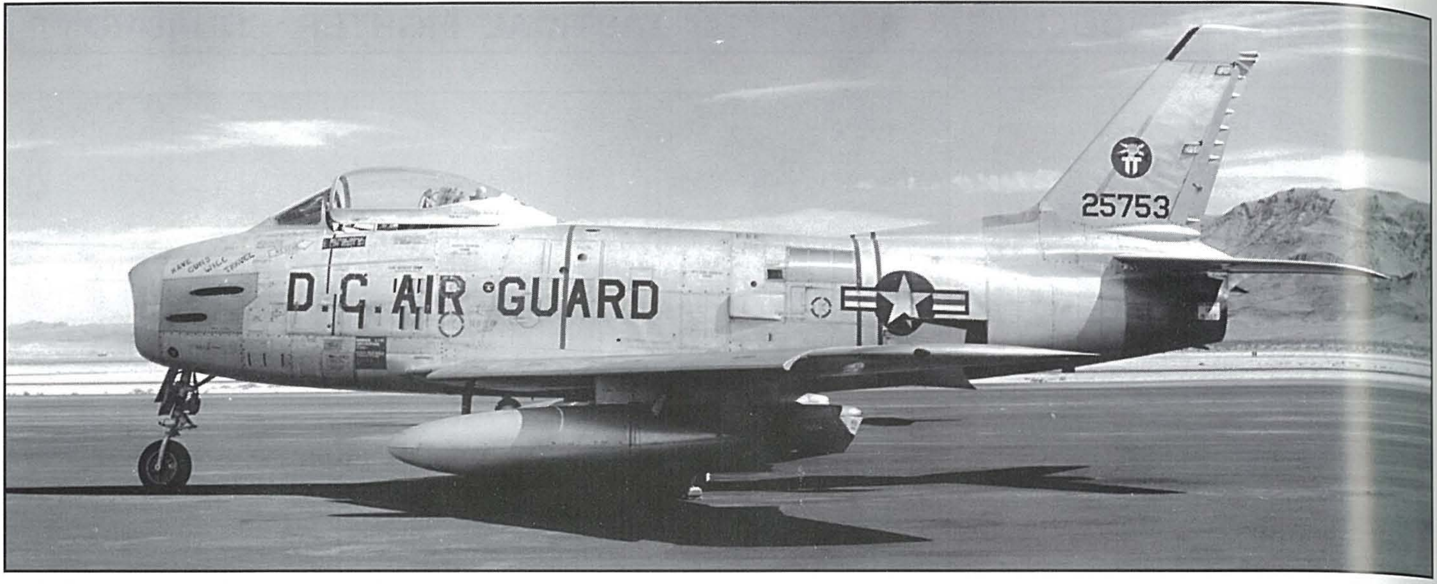
DC aircraft had an orange tail stripe outlined in black with white stars. At top, F-86H-10 53-1310. (Tom Hildreth) Above right, highly polished F-86H-10 53-1337. (Ginter Collection) At right, F-86H-10 53-1237 with DC ANG on the aft fuselage. (via Norm Taylor) Below, F-86H-10 53-1232 with D. C. AIR GUARD on the forward fuselage and the squadron insignia on the tail. (via Norm Taylor)



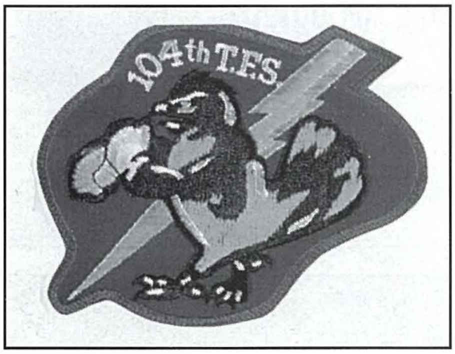


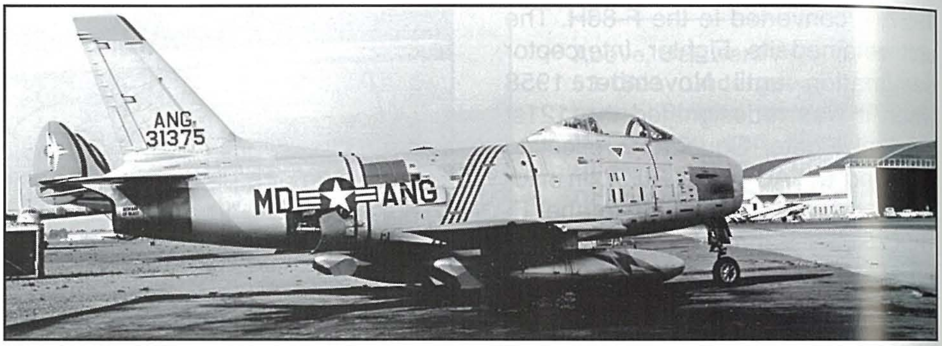






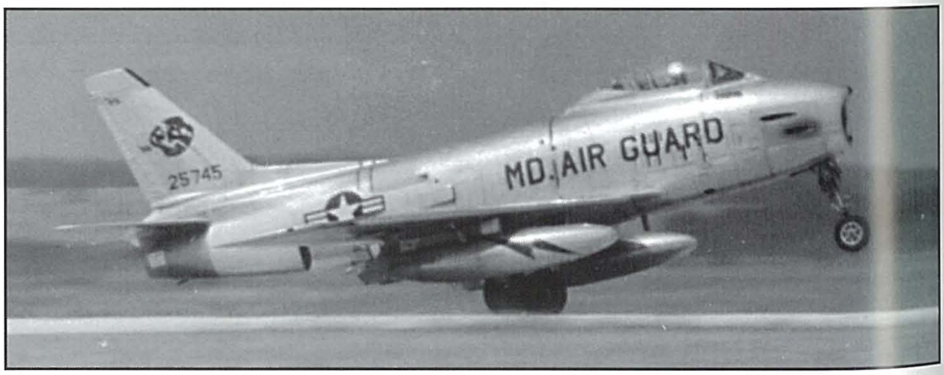
MARYLAND ANG, 104th TACTICAL FIGHTER SQUADRON

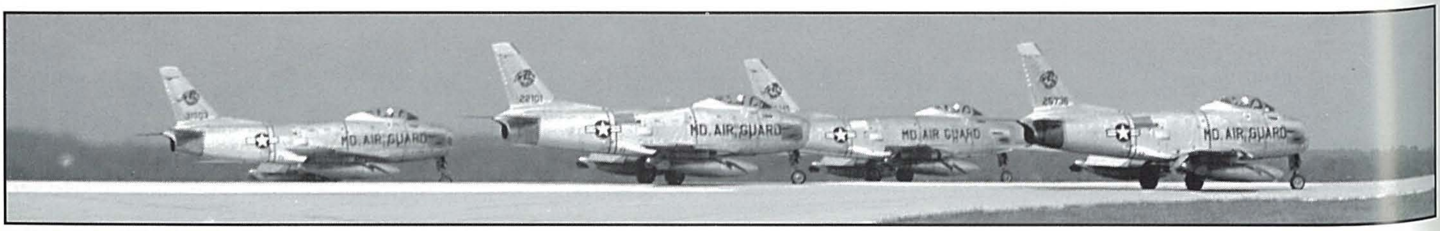


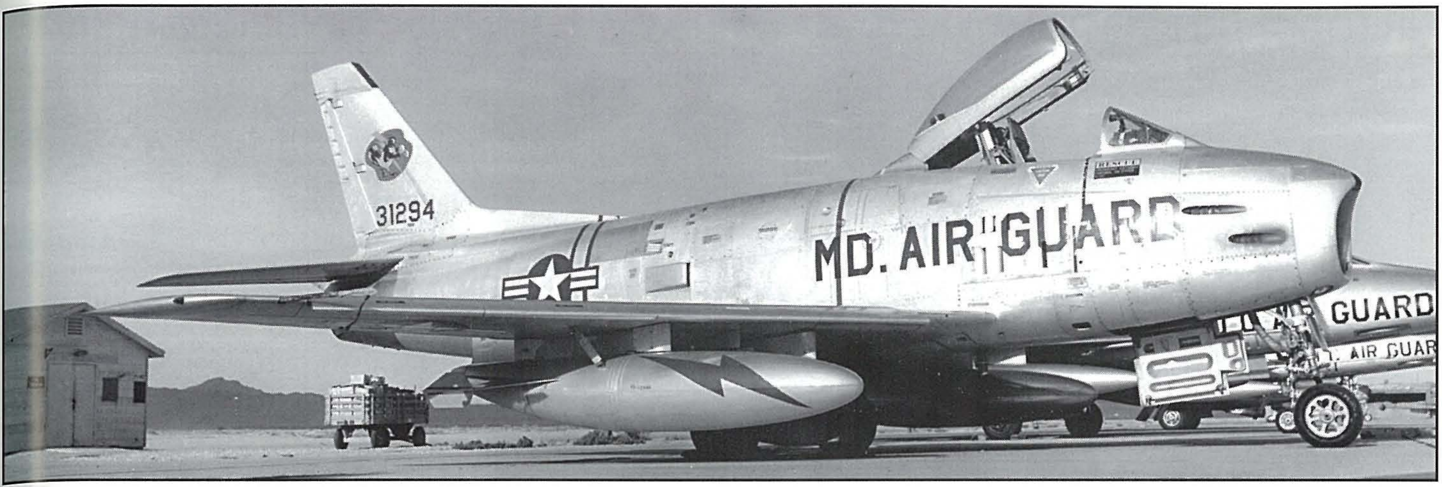


The 104th Fighter Squadron was located at Glenn L. Martin Airport outside Baltimore, MD, when, in 1957, it converted from F-86E Sabres to the F-86H. In November 1958, the unit was redesignated the 104th Tactical Fighter Squadron. On 1 October 1962, the 104th became a squadron under the 175th Tactical Fighter Group, the group forming that same day. The unit was called to active duty in response to the Pueblo Crisis and was assigned to Cannon AFB, Clovis, NM. The active duty period was from 13 May to 20 December 1968. Upon return to state control, the unit flew the F-86H until 1970, having received its first A-37B in April of that year.

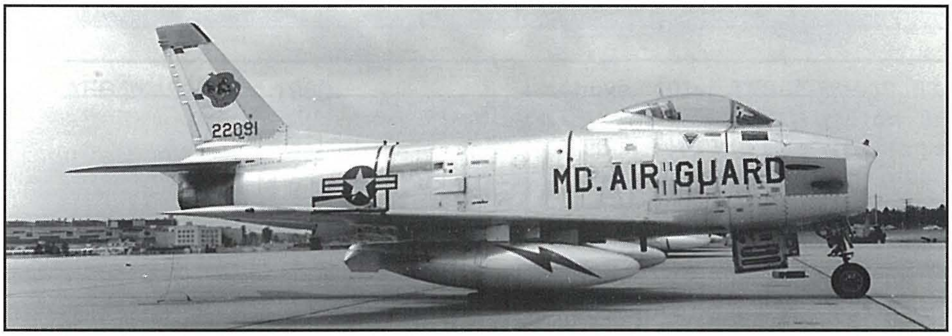
At top, 121st TFS F-86H-5 52-5753 at Nellis AFB in 1960. "Have Guns Will Travel" was painted on the nose. (D. Olson via William Swisher) Above, 104th TFS Maryland ANG F-86H-10 53-1375 at Oakland Airport on 21 January 1959. (Larry Smalley via Swisher) Below, F-86H-5 52-5745 taking off from Congaree AFB, SC, on 20 May 1961 with large squadron insignia on the tail and red lightning bolts on the drop tanks. (via Norm Taylor) Bottom, Maryland ANG F-86H-5s 53-1503, 52-2101, 52-5736 and 52-5745 taxi at Congaree on 20 May 1961. (via Norm Taylor)

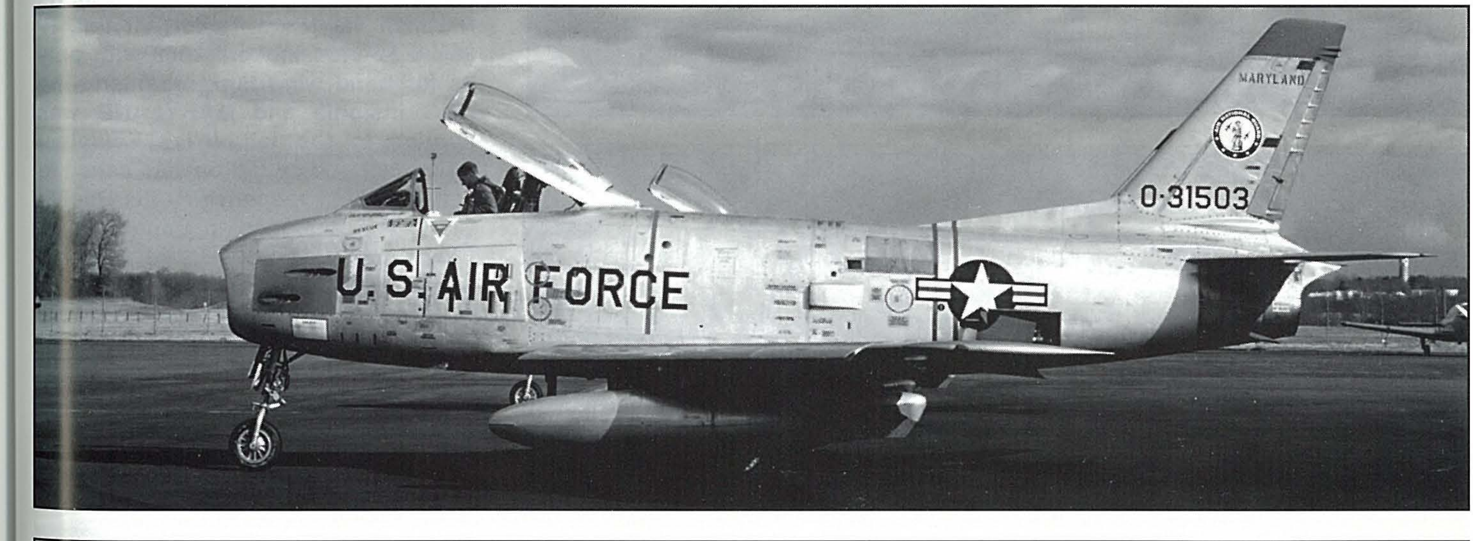


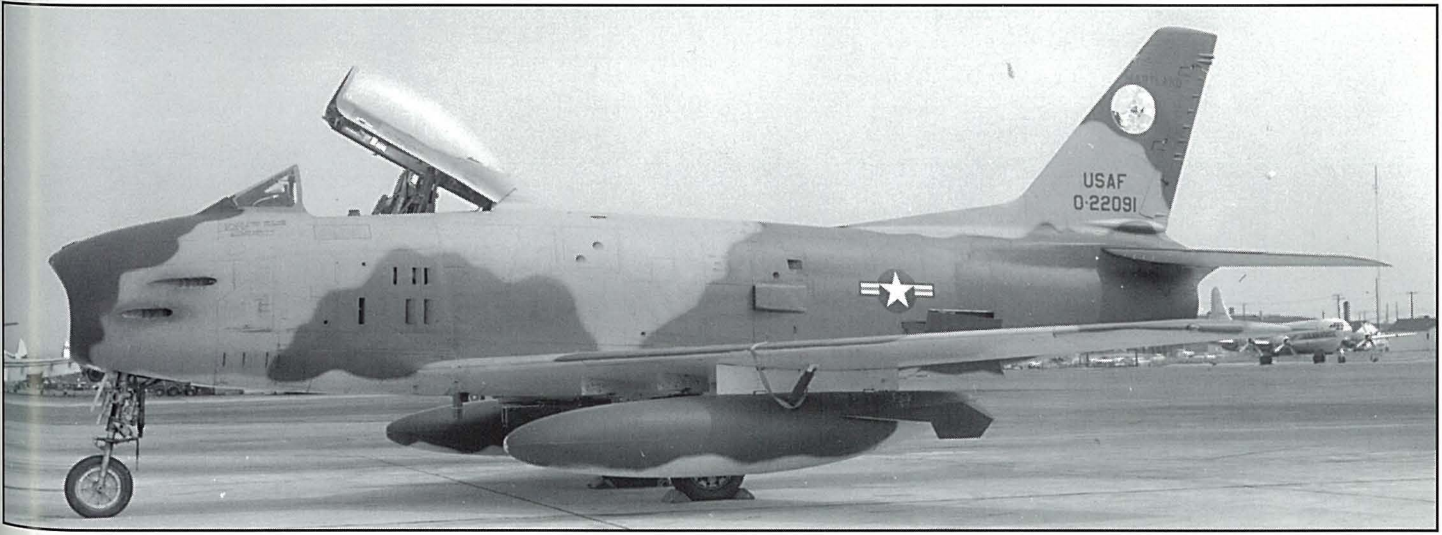


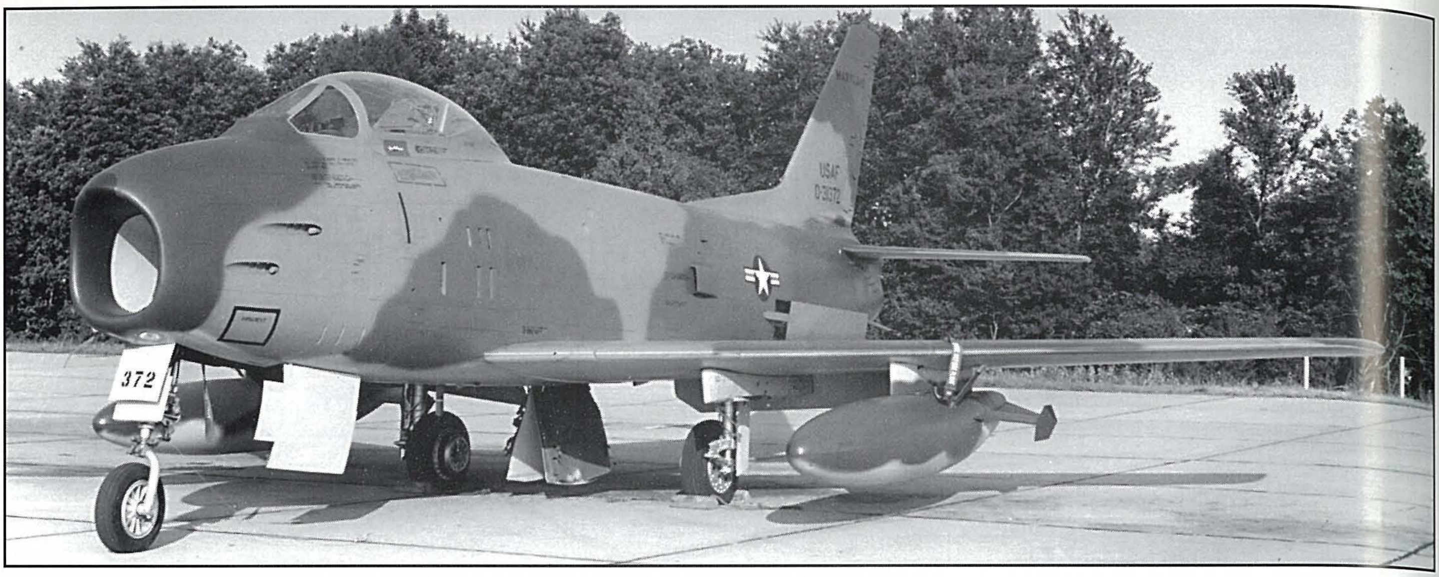


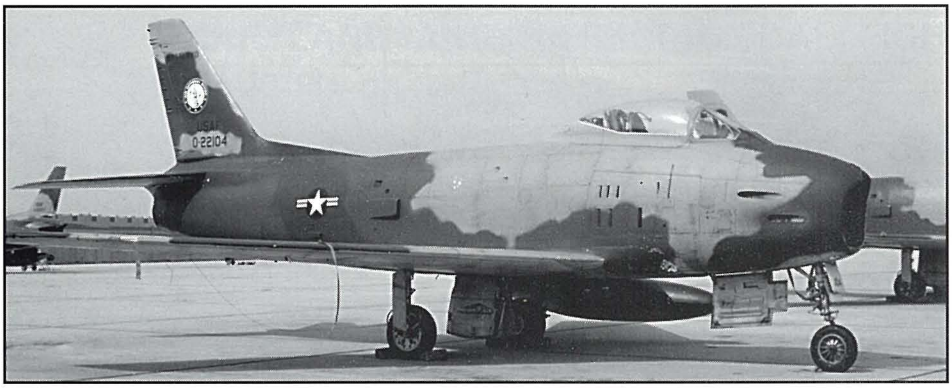
Above, 53-1294 at Nellis AFB in 1960. (D. Olson via Swisher) At right, 52-2091 in 1965. (Besecker) Below, 53-1503 in September 1966 with dark grey fin tip and the Air Guard insignia replacing the 104th insignia on the tail. MARYLAND has been painted in dark grey below the fin tip. (Nick Williams) Bottom, 52-2091 at New Castle, DE, in July 1966 with fresh South East Asia paint. (Esposito via Norm Taylor)

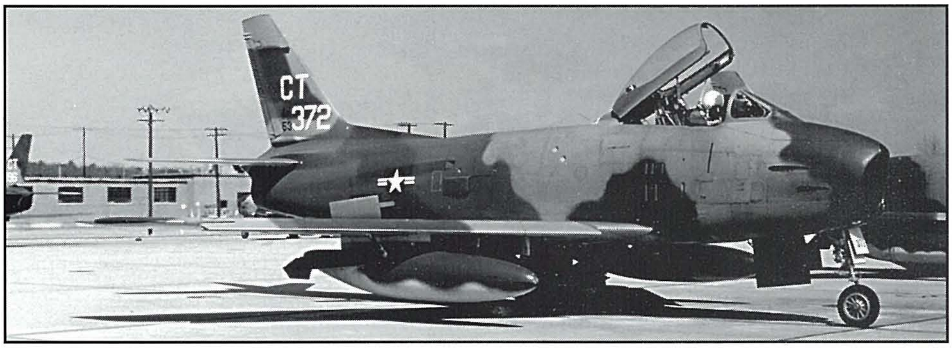






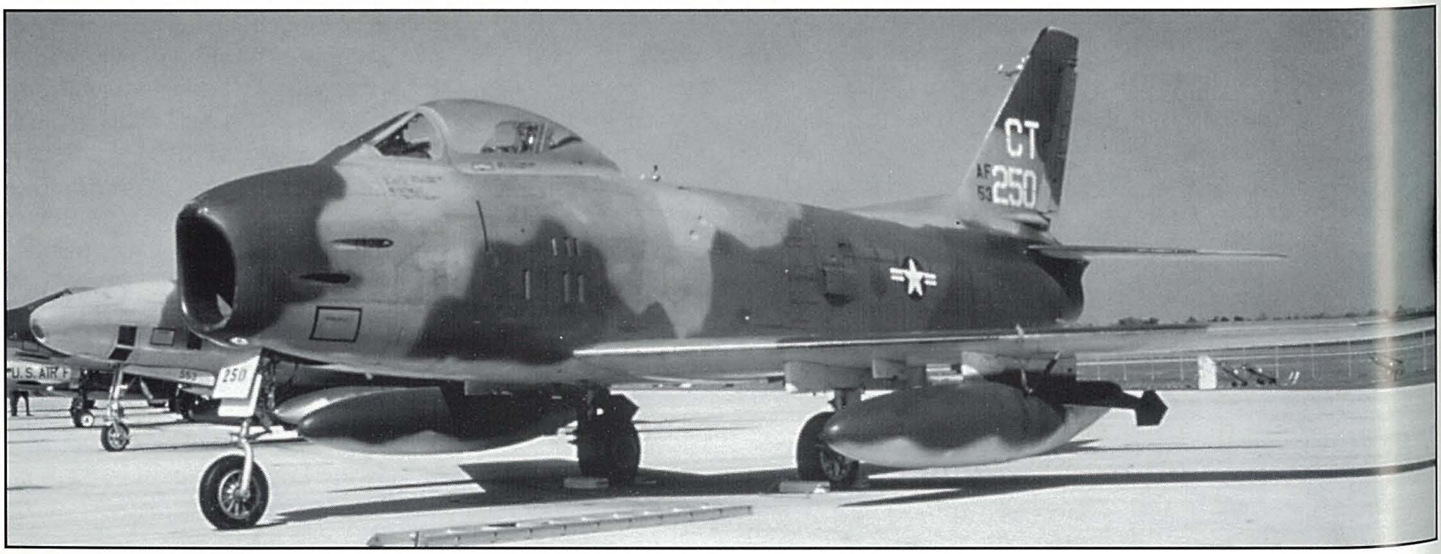




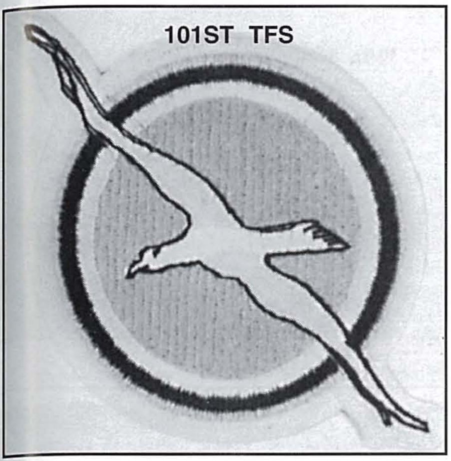


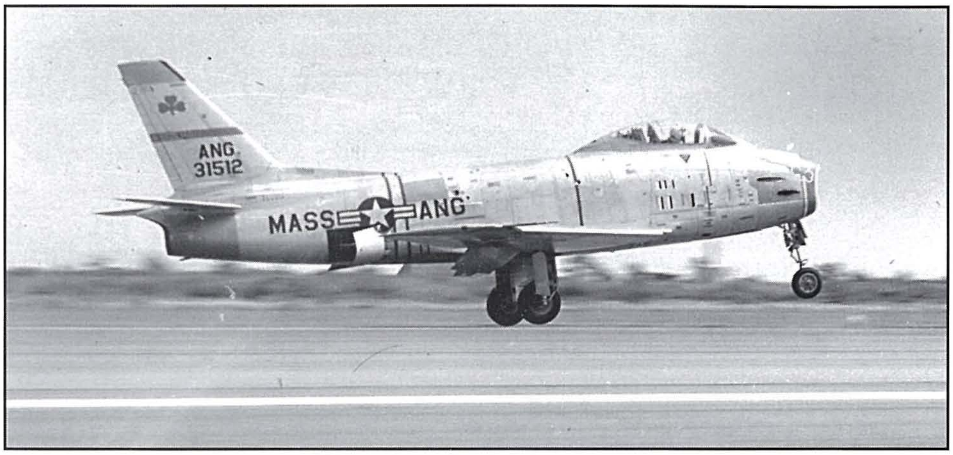
MARYLAND ANG, 104th TFS

Above, F-86H-10 53-1372 drying in the afternoon sun after the new camouflage scheme was applied at Travis Field, Savannah, GA, in June 1966. (F. Hartman via Norm Taylor) At left, F-86H-5 52-2104 in April 1968 with only its left-hand wing tank mounted. The ANG insignia and MARYLAND was applied to the tail. (Nick Williams) Below left, the squadron was called to active duty in response to the Pueblo Crisis and assigned to Cannon AFB, Clovis, NM, where the aircraft received the "CT" tail code and large white serial numbers. F-86H-10 53-1372 on 22 March 1969. (Nick Williams) Below, F-86H 53-1250 at an airshow with an RF-84F, F-100, and F-104 in the background. (via Kaston)



MASSACHUSETTS ANG, 101st AND 131st TACTICAL FIGHTER SQUADRONS

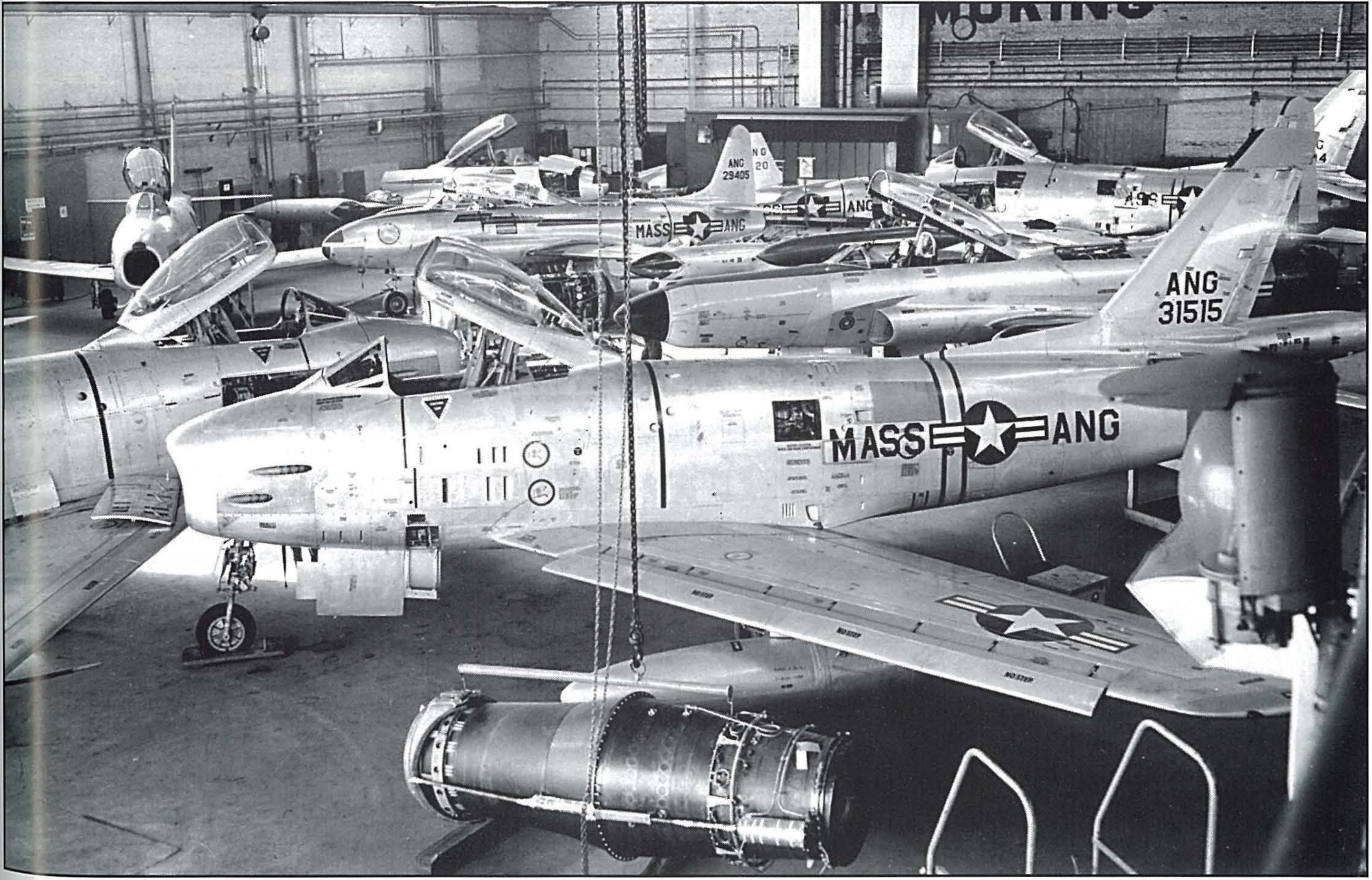


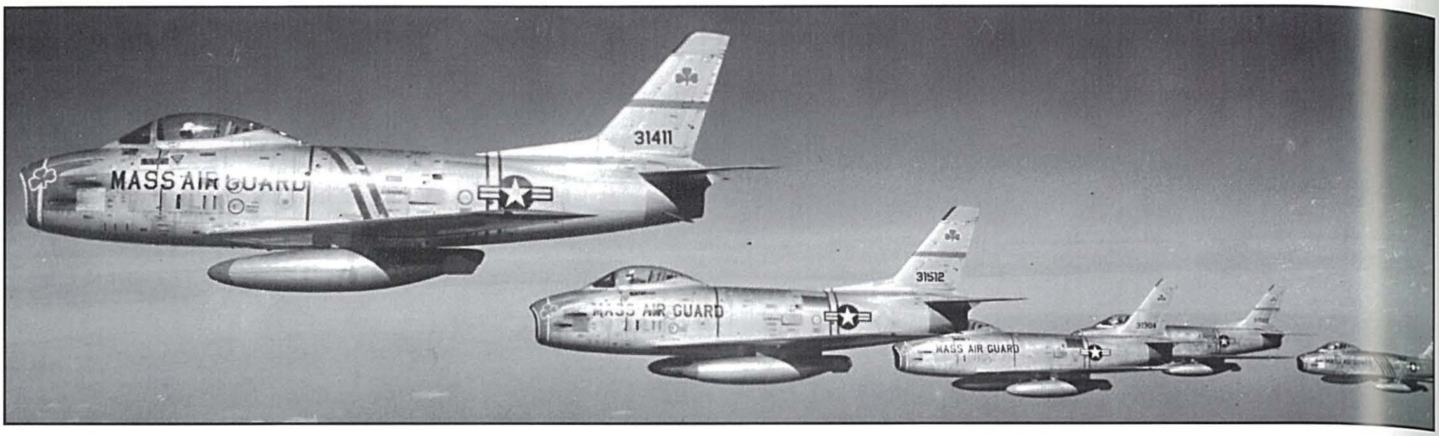


The 101st FIS was stationed at Logan Airport in Boston, Mass, and equipped with the Lockheed F-94A/B Starfires. The unit was assigned to the Air Defense Command when, in the fall of 1958, the squadron was redesignated the 101st Tactical Fighter Squadron (TFS) and was assigned to the Tactical Air Command (TAC). The unit received the F-86H to perform its new mission. Summer training was conducted at Otis AFB in 1959 and 1960.

In response to the Berlin Crisis, the unit was activated on 1 October 1961 and was deployed to Phalsbourg AB, France. The active status continued until 20 August 1962. The unit gained group status with the formation of the 102nd Tactical Fighter Group, of which the 101st TFS was the flying squadron. In March 1964, the unit traded its F-86Hs for the Republic F-84F Thunderstreak.

Above, 101st TFS F-86H-10 53-1512 at Otis AFB, MA, on 25 August 1958 with the squadron's signature shamrock and green trim. (P. Paulson via Norm Taylor) Below, 101st hangar at Logan Airport, MA, during changeover to the F-86H. Four F-86Hs, two T-33s and one F-94C are seen. (P. Paulson via Norm Taylor)

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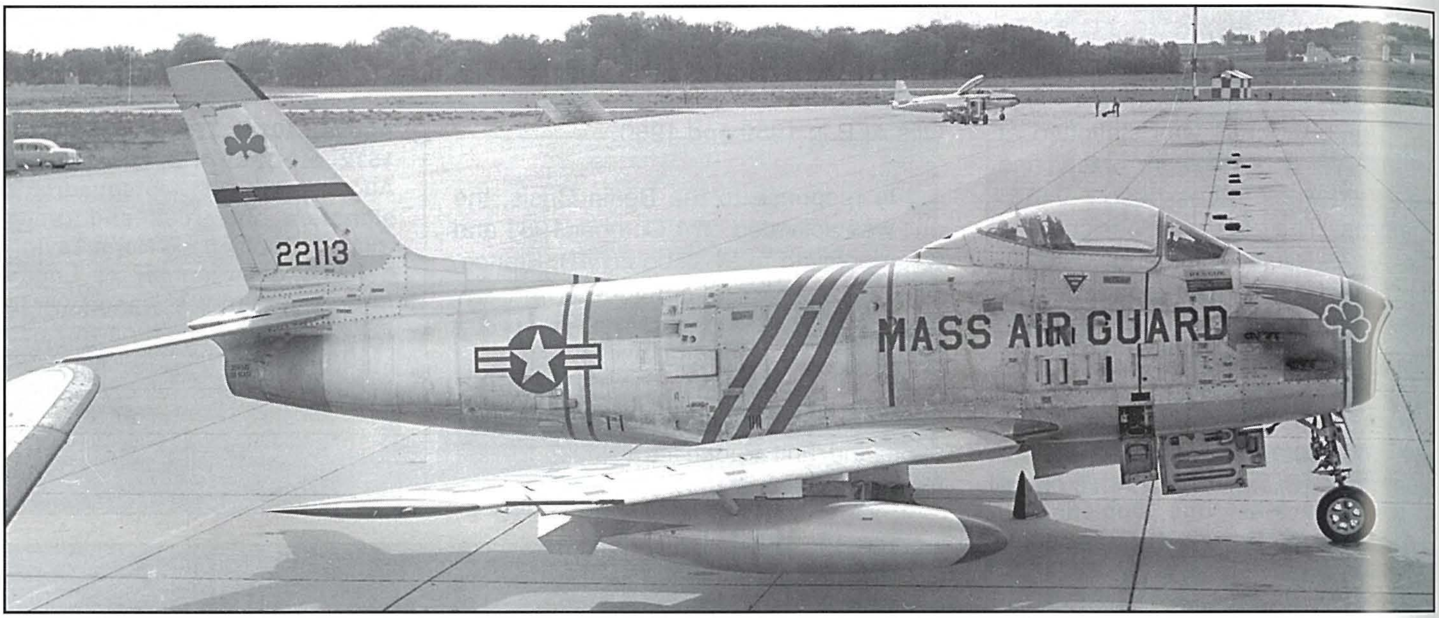
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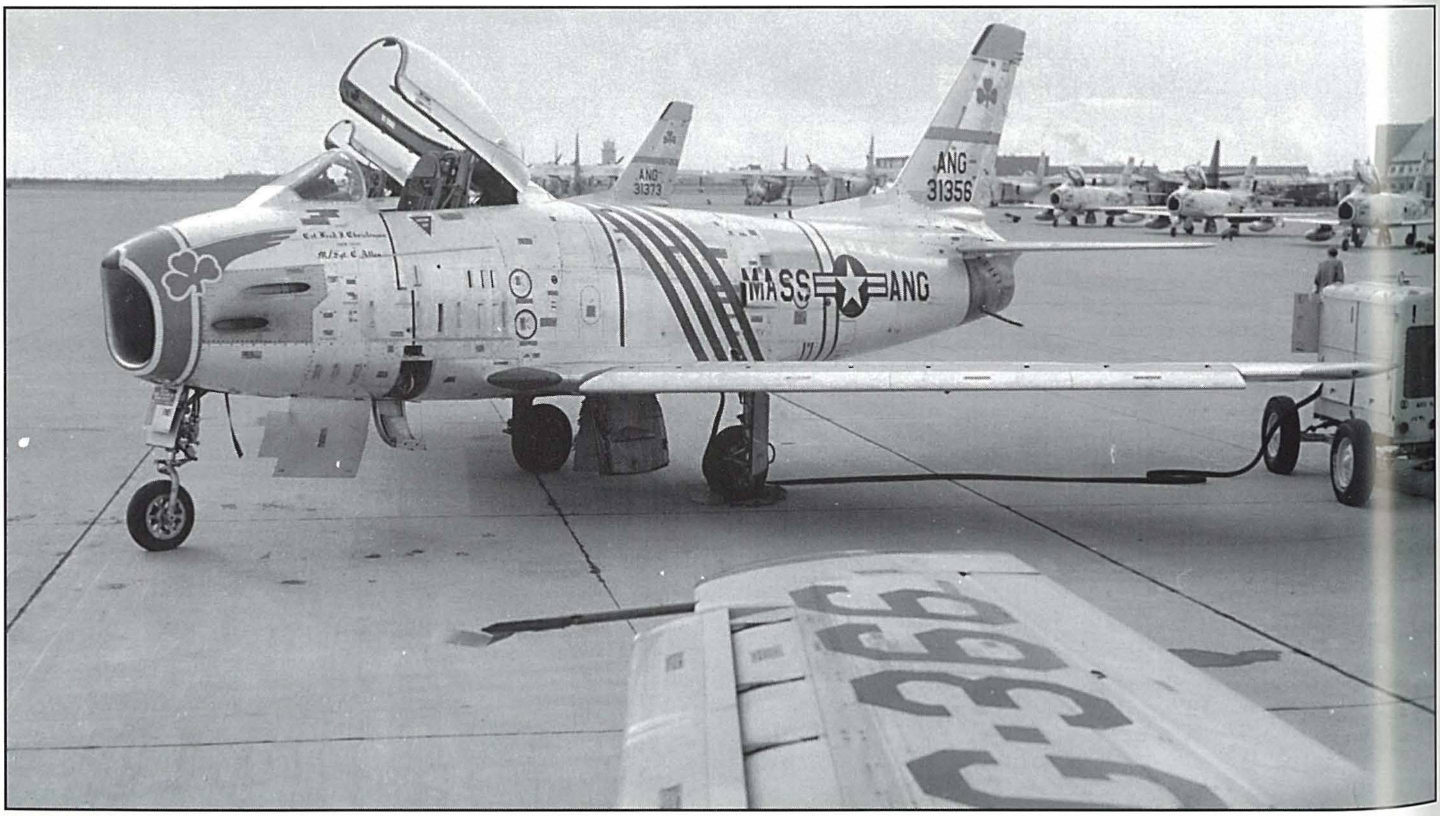
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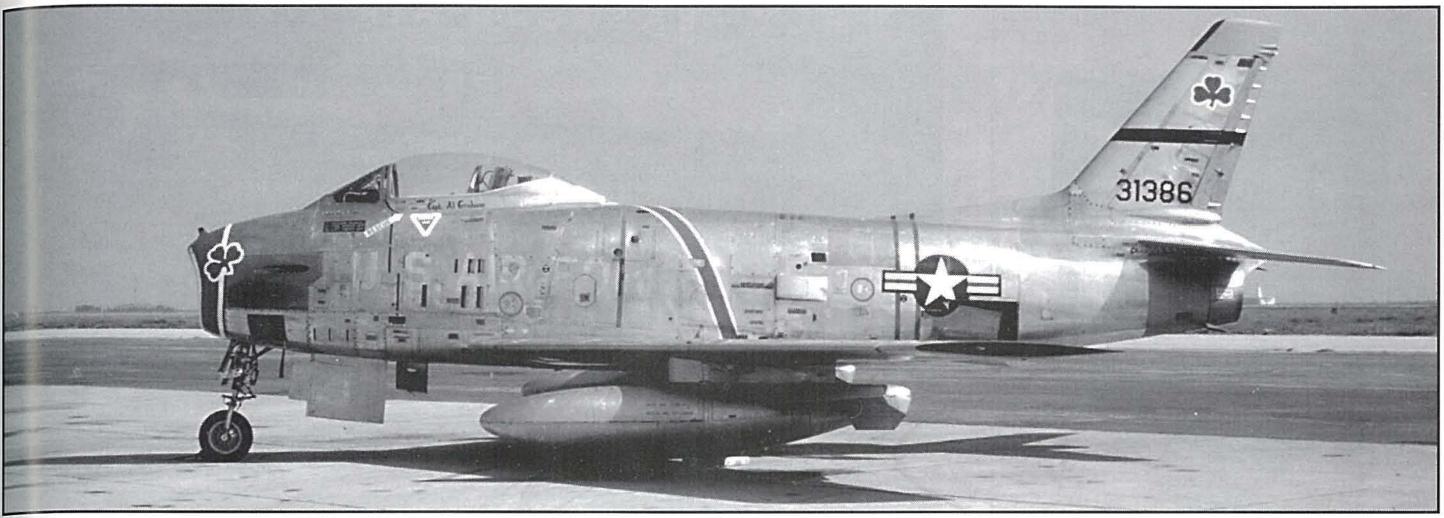
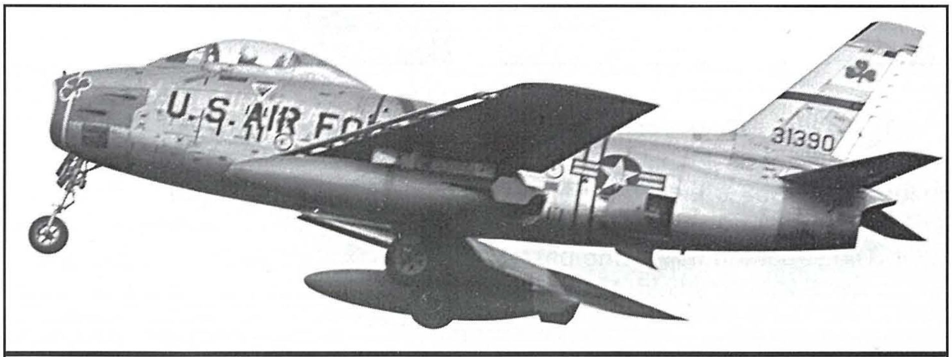
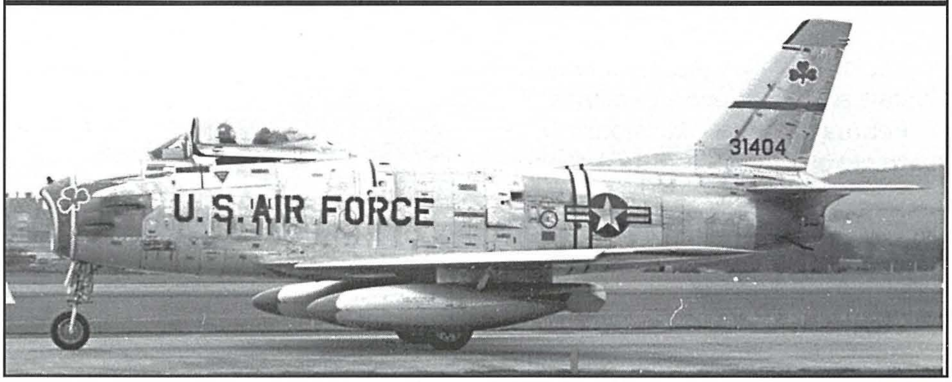
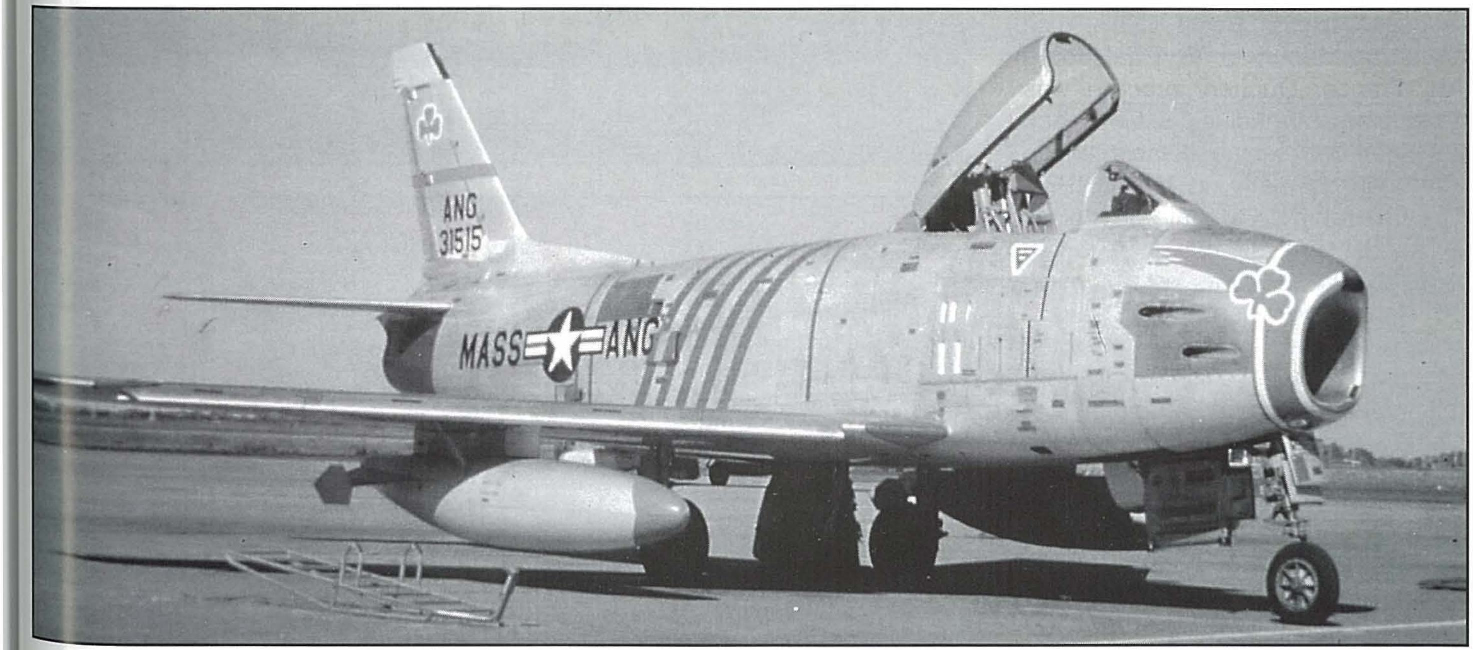
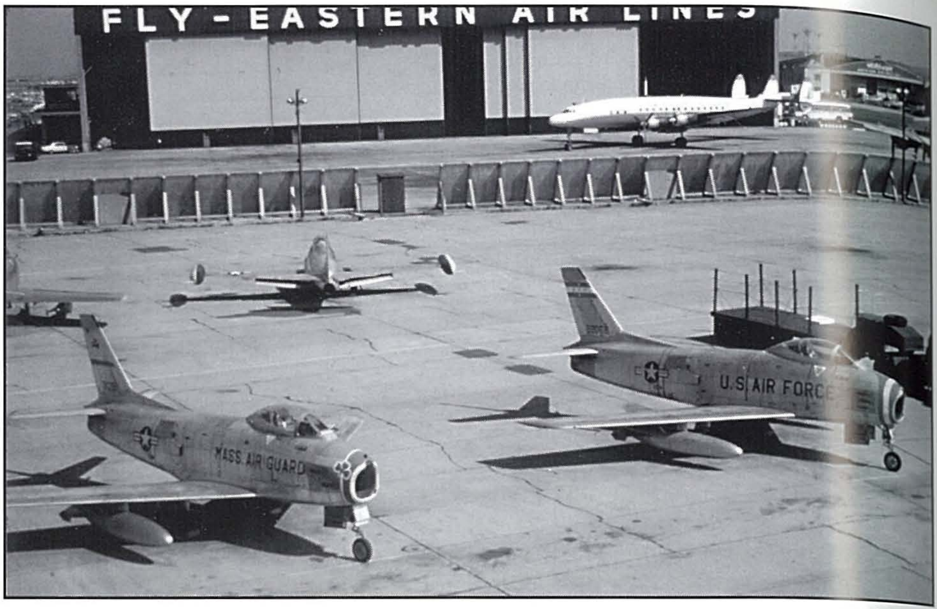


At left top, five 101st F-86Hs; 53-1411, 53-1512, 53-1304, 53-1522, and 53-1350. (via Norm Taylor) At left, F-86H-5 52-2113 at Joe Foss Field, Sioux Falls, SD, in July 1959. Fin tip was medium grey, tail stripe was black and fuselage stripes were red. MASS AIR GUARD was blue. Tail shamrock and wing tank tips were green and nose markings were green and white. (P. Paulson via Norm Taylor) Below left, 53-1356 was Col Fred J. Christensen's mount. It had four red fuselage stripes and a green fin tip and tail stripe. Note upper wing F-86H markings in the foreground. (P. Paulson via Norm Taylor) At top, 53-1386 at NAS Los Alamitos on 15 September 1962. Tail stripe was black and fuselage stripe was green and white. (William Swisher) Above right, 53-1390 taking off. (Tom Hildreth) At right, 53-1404 taxis back to the ramp. (Tom Hildreth) Below, 53-1515 with five red fuselage stripes. (via Kaston)

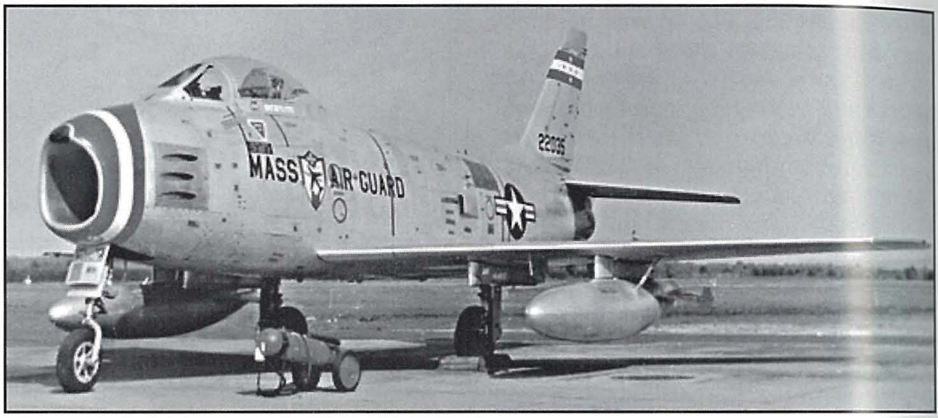




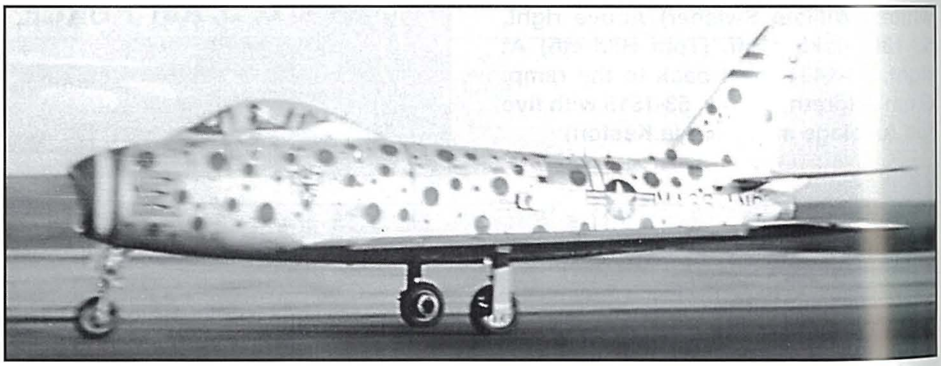




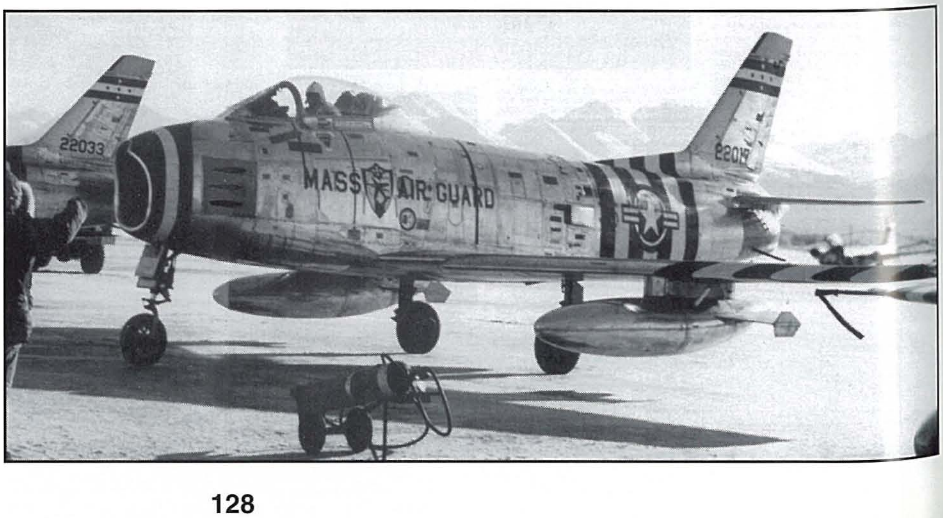
The 131st FIS was redesignated the 131st Tactical Fighter Squadron in the fall of 1958 when it traded in its Lockheed F-94C Starfires for the F-86H. The squadron was home-based at Barnes Field, Westfield, MA, when the transition took place.



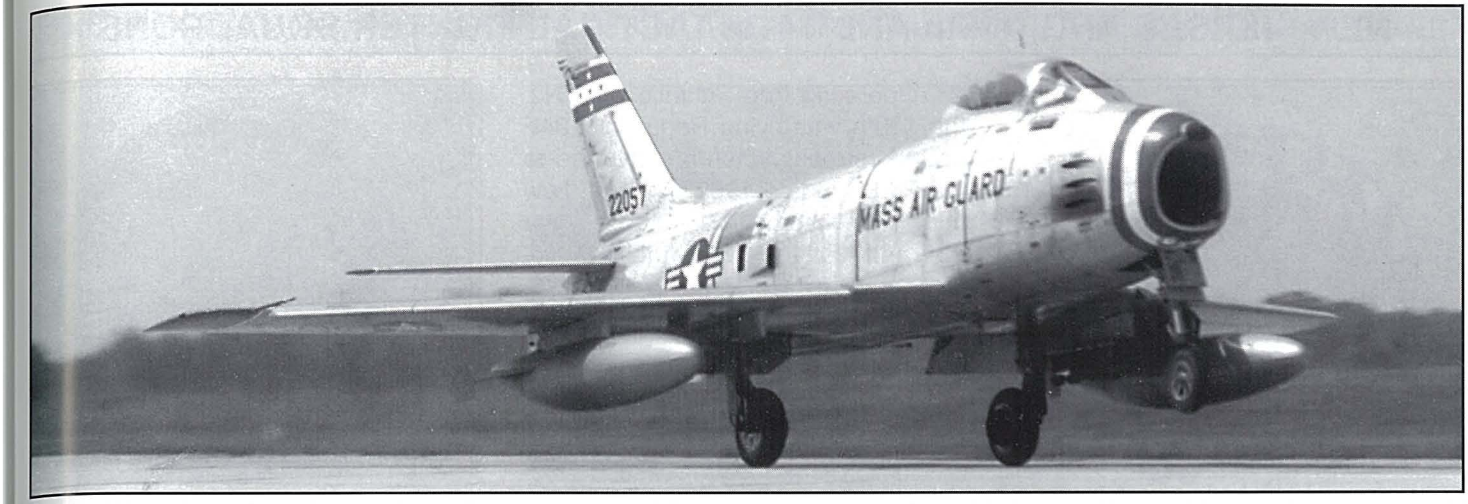
The squadron participated in Operation Willow Freeze with eleven aircraft and 25 support personnel on 4 February 1961. Missions were flown out of Elmendorf AFB in support of 6,500 ground troops. During the two week period the unit's F-86Hs wore green and white invasion style fuselage stripes.

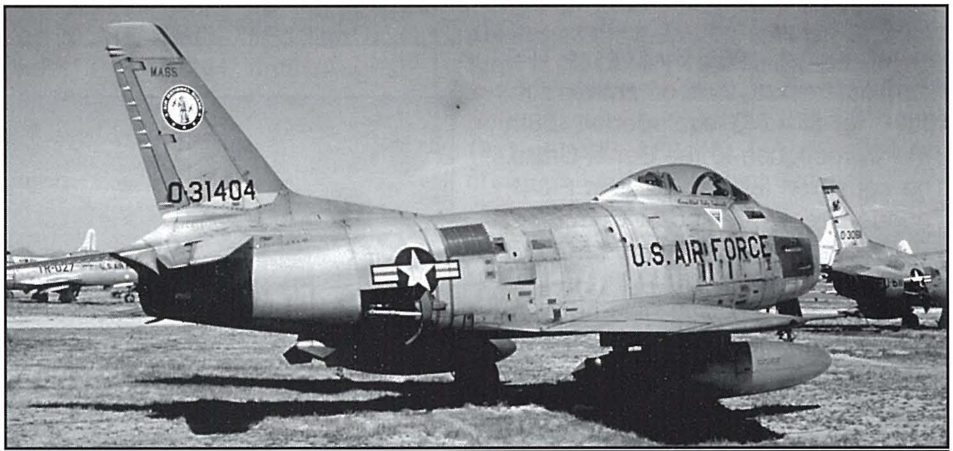


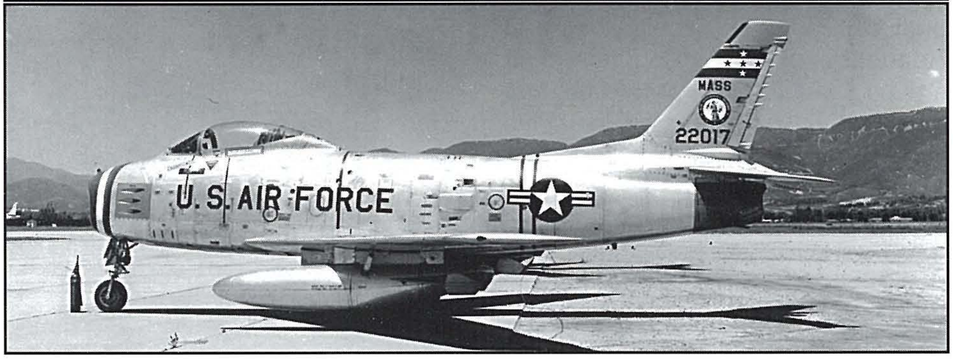
Like the 101st TFS, the 131st was activated on 1 October 1961 in response to the Berlin Crisis. The squadron deployed to Phalsbourg AB, France. Gunnery practice was conducted at Wheelus AB, Libya, and the squadron sent a detachment to Leck AB, Germany, in March 1962. The unit returned to state control on 20 August 1962 and that same month a squadron F-86H was lost 100 miles off Cape Cod. Capt Hugh Lavalle parachuted safely and was rescued by the Russian fishing trawler Johannes Wares and transferred to a Coast Guard helicopter for return to his unit.



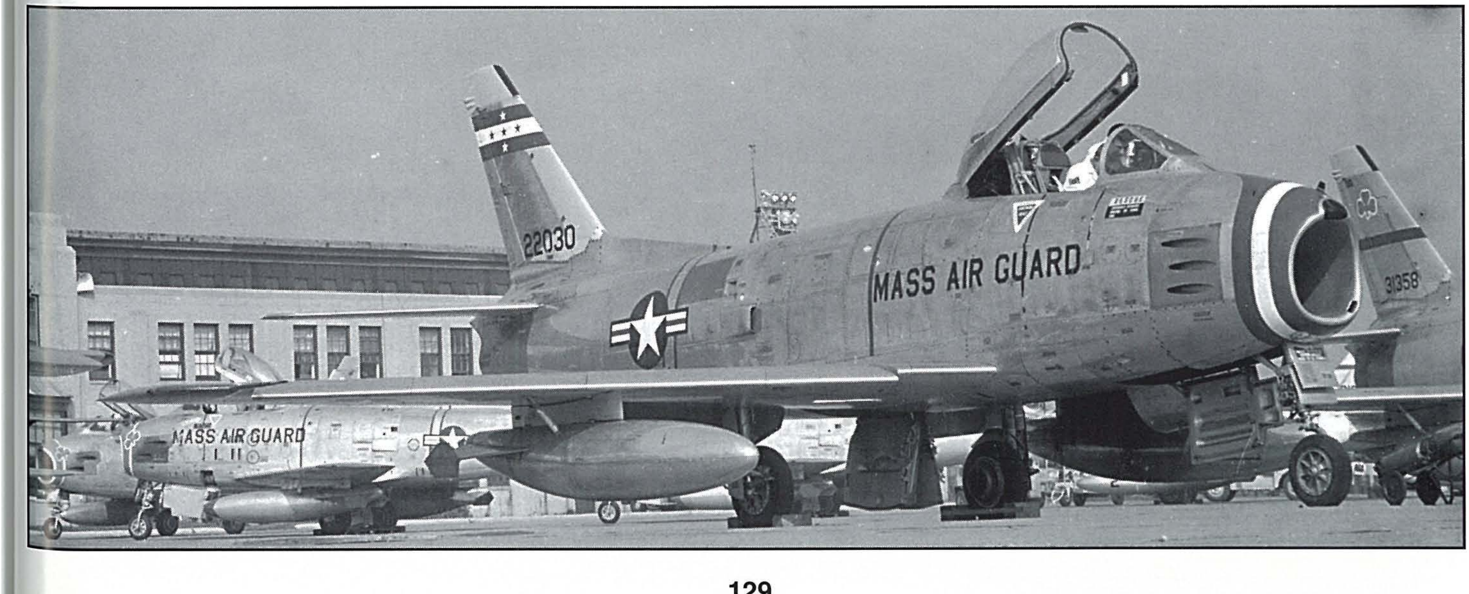
The squadron flew the F-86H until March 1964 when the squadron received the Republic F-84F Thunderstreak.



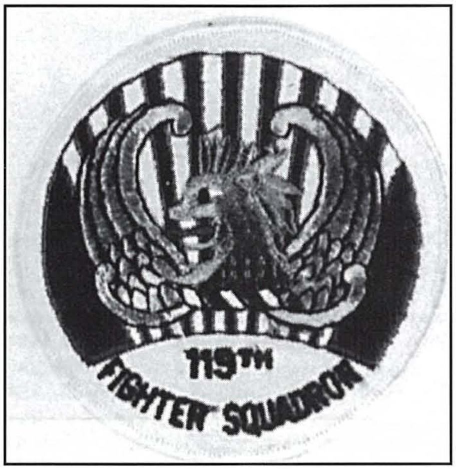




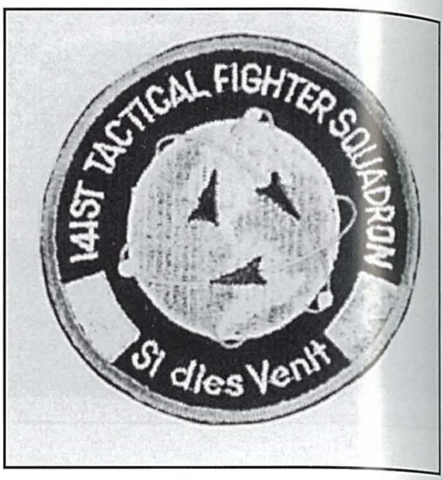
Above left, 101st TFS F-86H-10 in the left foreground with a 131st TFS F-86H-1 in the right foreground. The 131st flew dash-1s exclusively and the 101st flew dash-5/10s. (via Kaston) At left, 131st 52-2035 at Westover AFB, MA, on 21 May 1960 with squadron insignia on the fuselage side. Nose and tail trim was red and white. (Tom Hildreth) Below left, red pokadot-covered F-86H-1 52-2042 from the 131st at Barnes Airport, MA, in January 1959. (Tom Hildreth) Bottom left, 131st F-86H-1s wore green and white invasion style fuselage and wing stripes during Operation Willow Freeze in Alaska, in 1961. (ANG) At top, 131st F-86H-1 52-2057 rotates at Congree AB, SC, on 20 May 1961. (via Norm Taylor) Above right, 101st F-86H-10 53-1404 sans shamrock markings in retirement at Davis-Monthan AFB, on 22 March 1965. (William Swisher) At right, 131st F-86H-1 52-2017 at Norton AFB, CA, in May 1954 with Air Guard emblem on the tail. (Clay Jansson) Below, 131st F-86H-1 52-2030 at Logan Airport, Boston, MA, in October 1961. (P. Paulson via Norm Taylor)



NEW JERSEY ANG, 119th AND 141st TACTICAL FIGHTER SQUADRONS

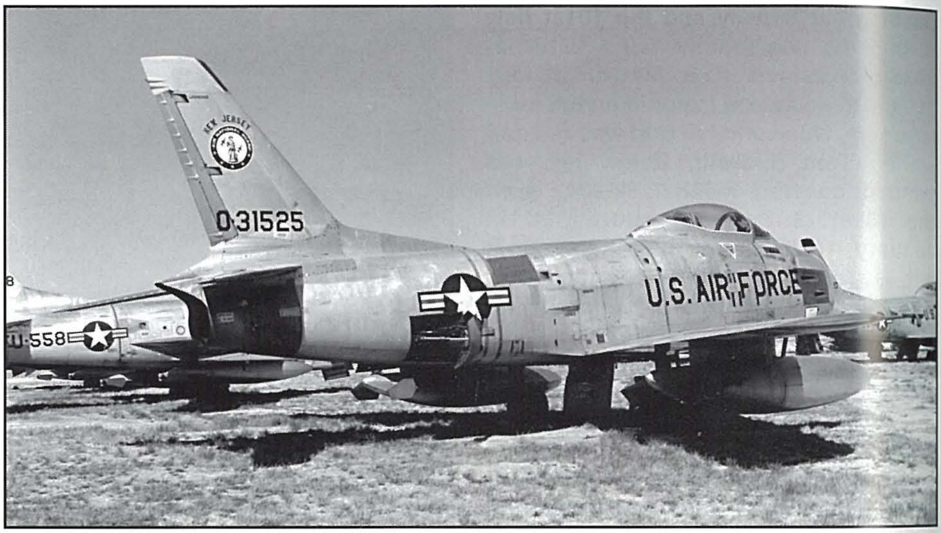


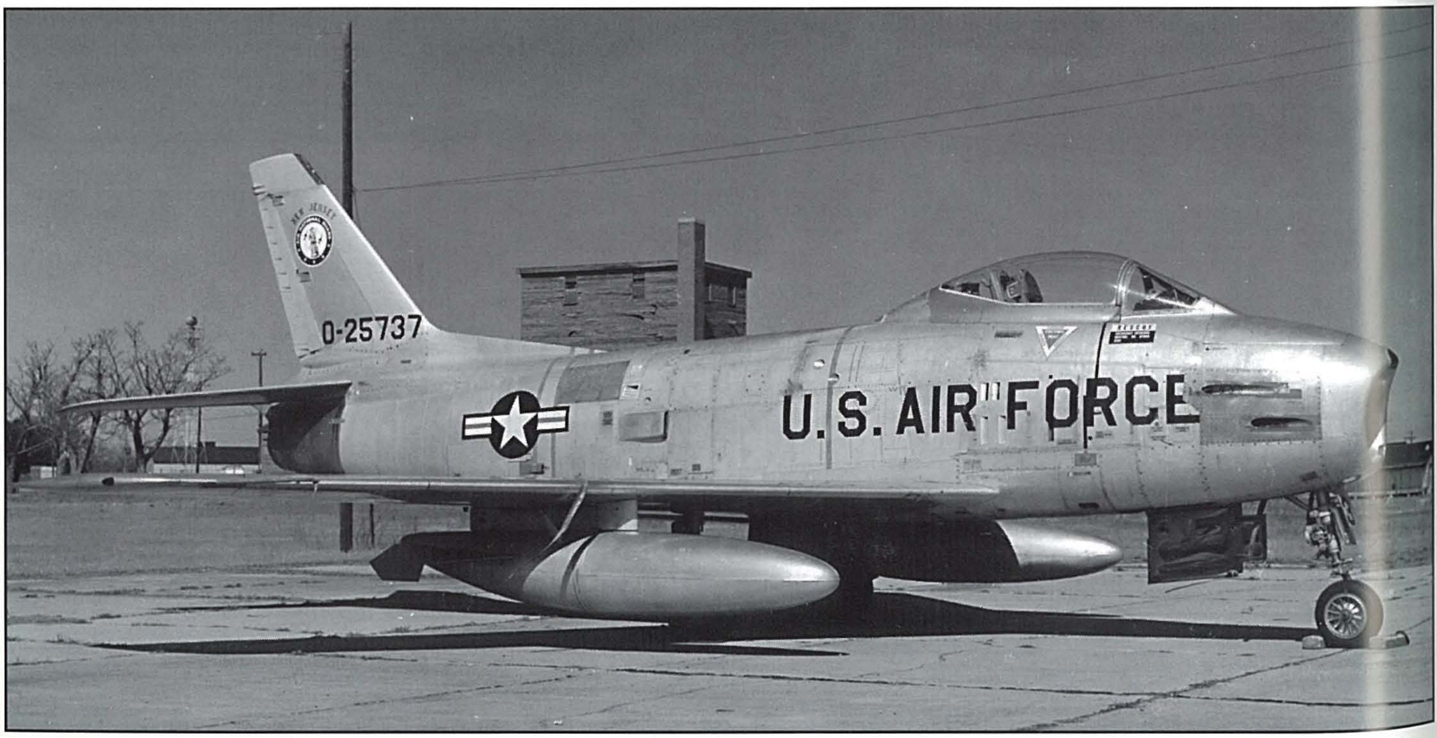
Operating from Atlantic City, NJ, the 119th was flying Republic F-84F Thunderstreaks when it converted to the F-86H in late 1962. The unit flew the "H" until sometime in 1965, when the unit converted to the F-100C Super Sabre.



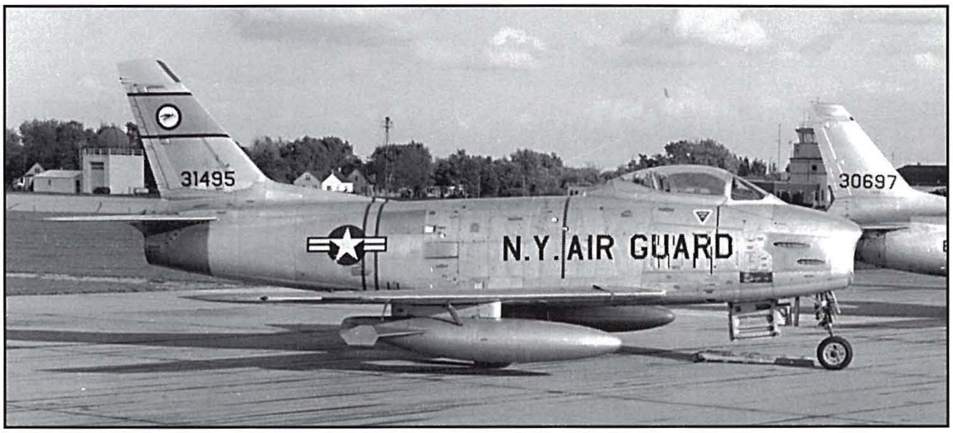
In August 1962 the 141st TFS returned from a tour of active duty with the all-ANG-equipped 7108th TFW in response to the Berlin Crisis. The squadron left its Republic F-84F Thunderstreaks behind at Chaumont AB, France, for use by the 366th TFW and transitioned to the F-86H. The conversion to the F-86H was accomplished by change to group status and the 141st became a component of the 108th TFG based at McGuire AFB, NJ. The 141st flew the "Hog" until April 1964 when the first Republic F-105B Thunderchief arrived, making the 141st the first ANG unit to convert to the supersonic fighter / bomber.

Below, F-86H-10 53-1525 at Davis-Monthan AFB on 22 March 1965. (William Swisher) Bottom, F-86H-5 52-5737 at Florence, SC, on 20 February 1965. (Norm Taylor)



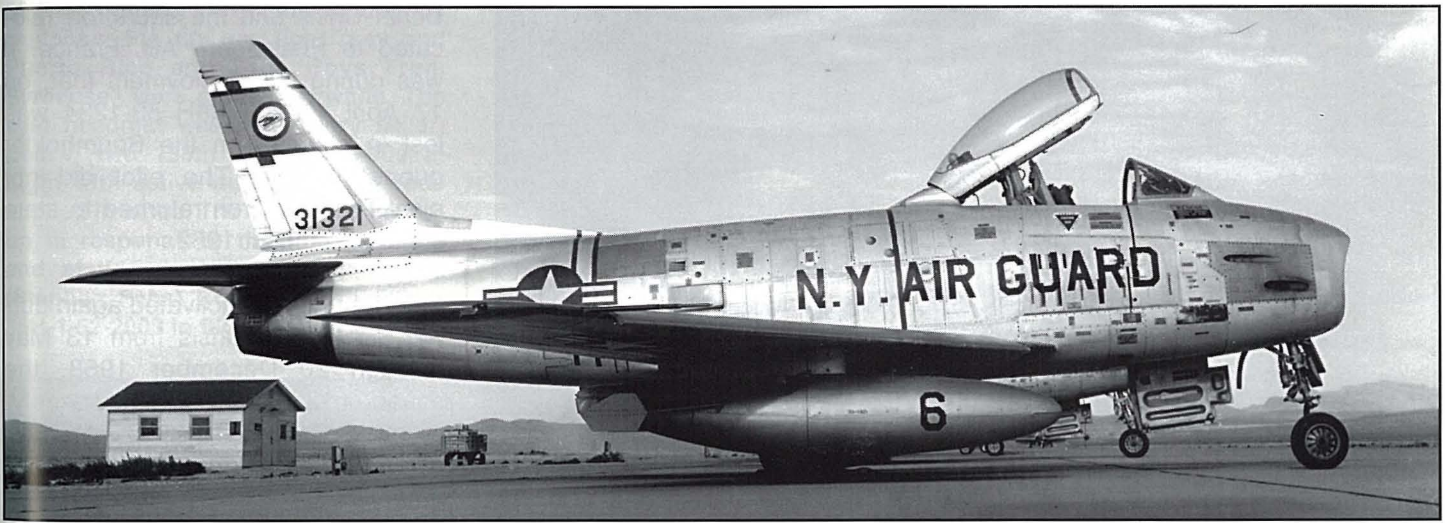


NEW YORK ANG, 136th, 137th, 138th, AND 139th TACTICAL FIGHTER SQUADRONS

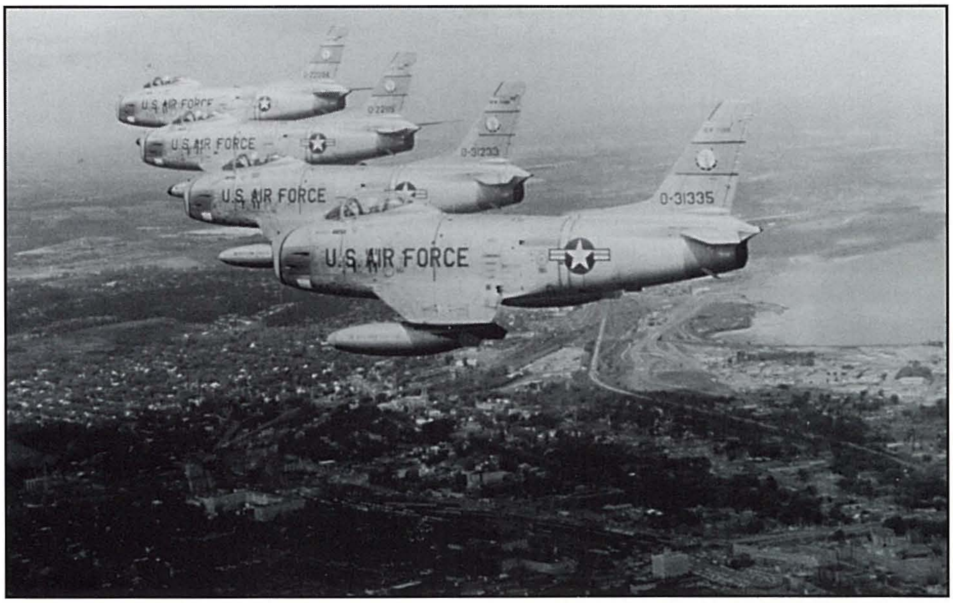


Operating from Niagara Falls Airport, NY, the 136th FIS flew Lockheed F-94B Starfires until October 1957, when the unit converted to the F-86H and was redesignated to the 136th TFS. The unit kept the F-86H until August 1960, at which time it converted to the F-100C Super Sabre.

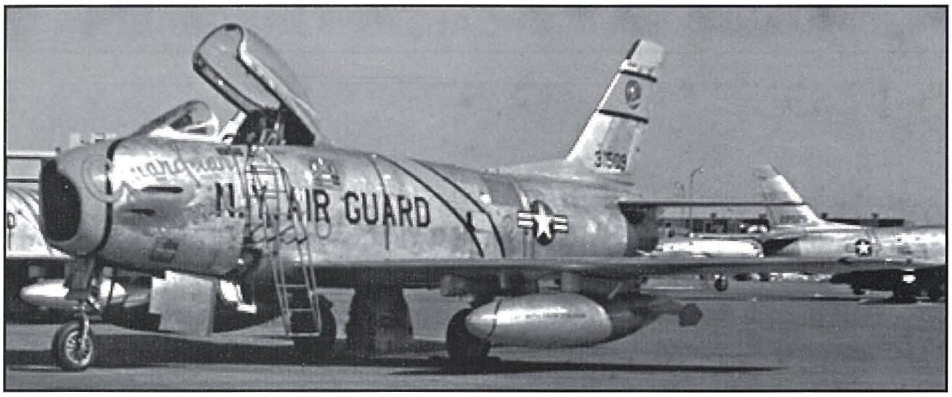
Above, 136th F-86H-10 53-1495 at Peoria Airport, IL, in May 1959 had an orange tail stripe outlined in blue. (Dave Menard via Norm Taylor) Below, 136th F-86H-10 53-1321 at Nellis AFB, NV, in early 1960 with orange tail stripe. (William Swisher)

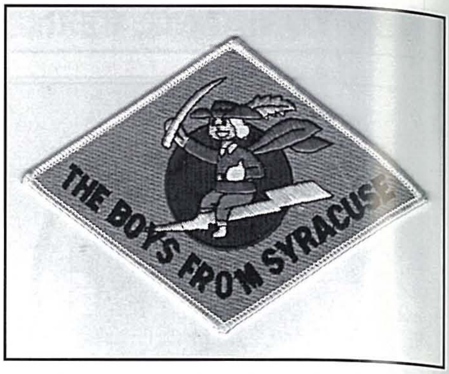


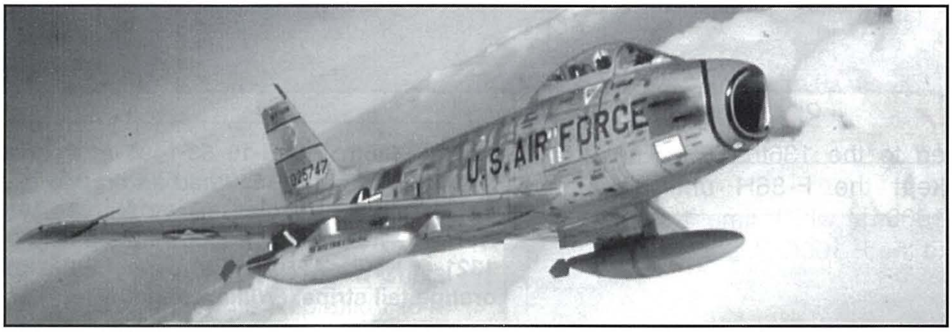
The 137th FIS was another New York ANG unit that was flying the Lockheed F-94A/B Starfire when it converted to the F-86H in May 1958 when it was redesignated the 137th TFS. The F-86Hs were replaced in February 1961 when the squadron equipped with Boeing C-97 transport aircraft. The unit flew from White Plains, NY.

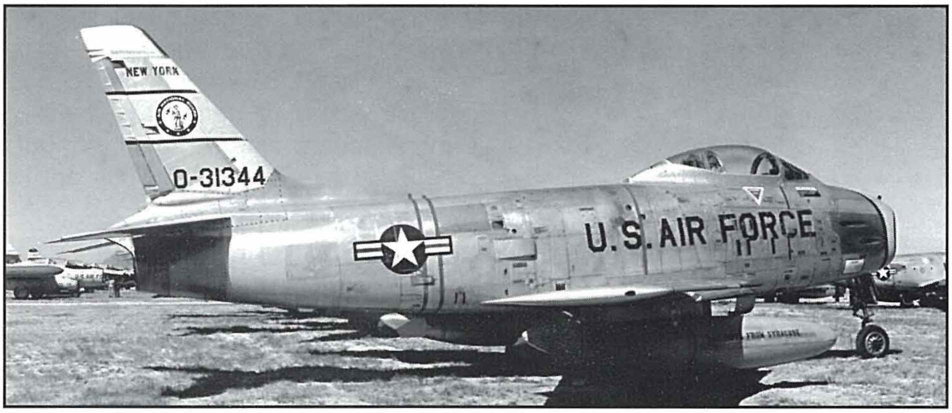


At right, four 138th TFS F-86Hs (53-1335, 53-1233, 52-2116, and 52-2094) in flight. The 138th had yellow trim outlined in black on the tail, nose, and wing tips. (Joe McCann)







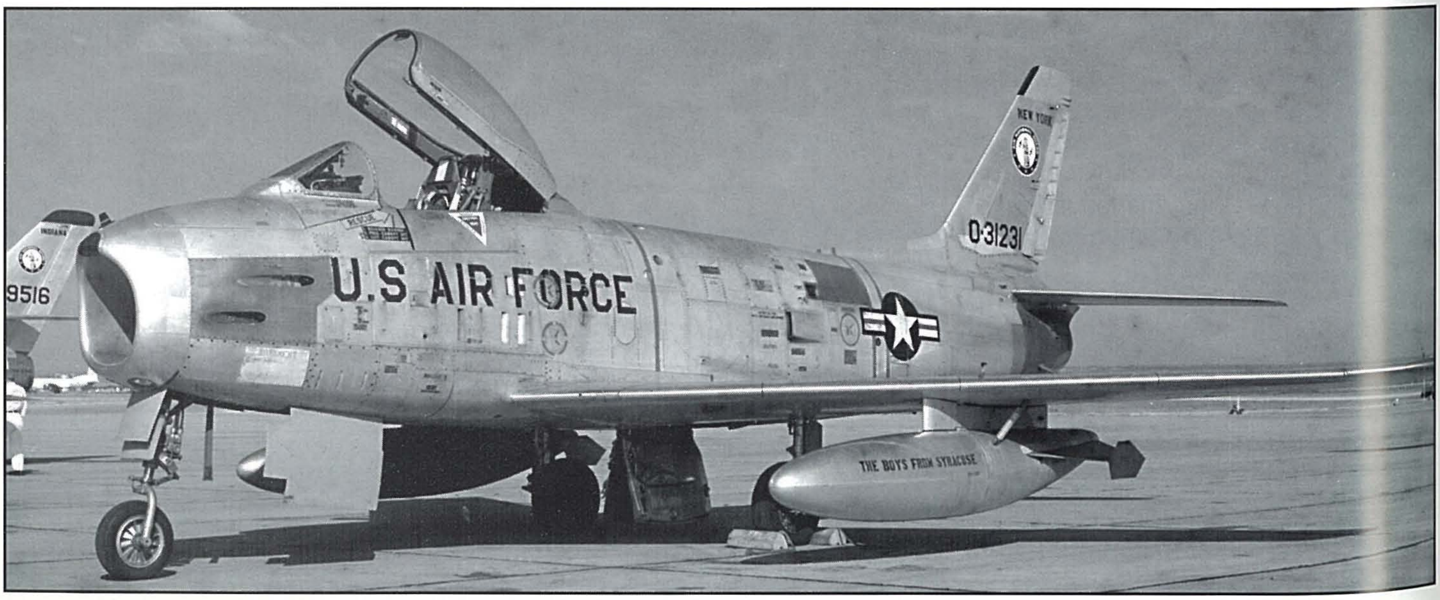


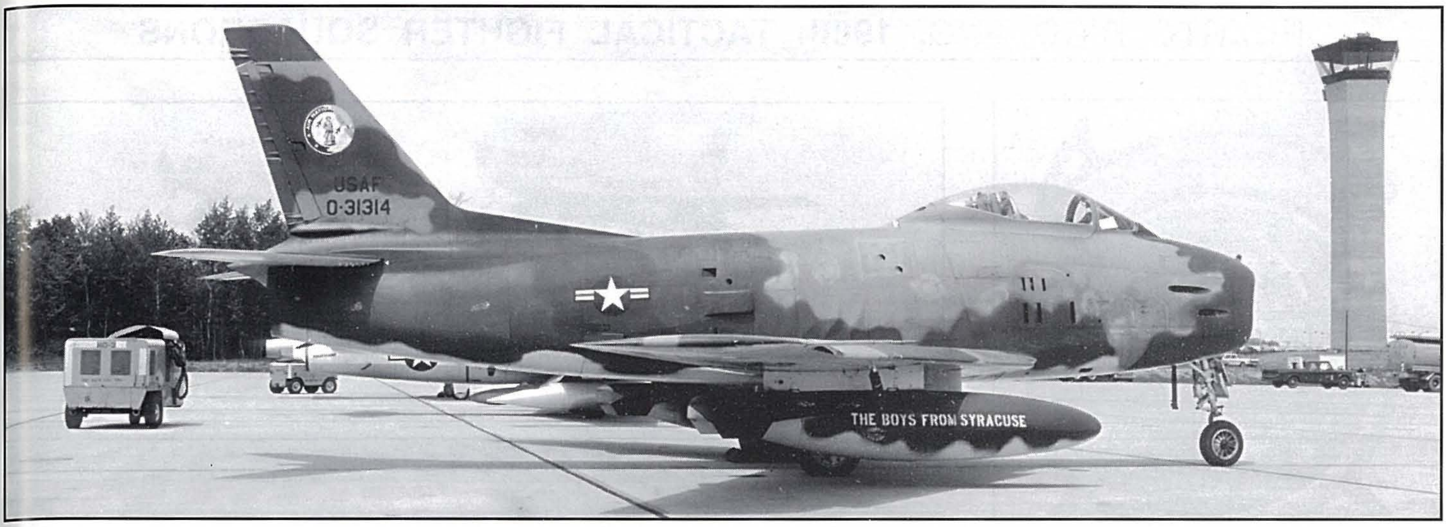
At top, 138th 53-1509 "Guardian Angel" on 22 February 1963. (Tom Hildreth) Above middle, 138th 52-5747 in flight. (Jim McLennan) Above, 138th 53-1344 at D-MAFB on 22 March 1965. (Swisher) Below, 138th 53-1231 on 8 May 1965. (Norm Taylor)

The 138th FIS, the famous "Boys from Syracuse", were stationed at Hancock Field and were flying Lockheed F-94B Starfires when, in December 1957, they began conversion to the F-86H. In the summer of 1958, the unit was redesignated the 138th TFS.

The squadron was activated on 1 October 1961 in response to the Berlin Crisis and the squadron relocated to Phalsbourg AB, France. It was during this deployment that, on 17 April 1962, F-86H 53-1234 was lost in a crash on the Baumholder gunnery range. The pilot did not eject.The squadron returned to state control in August 1962.

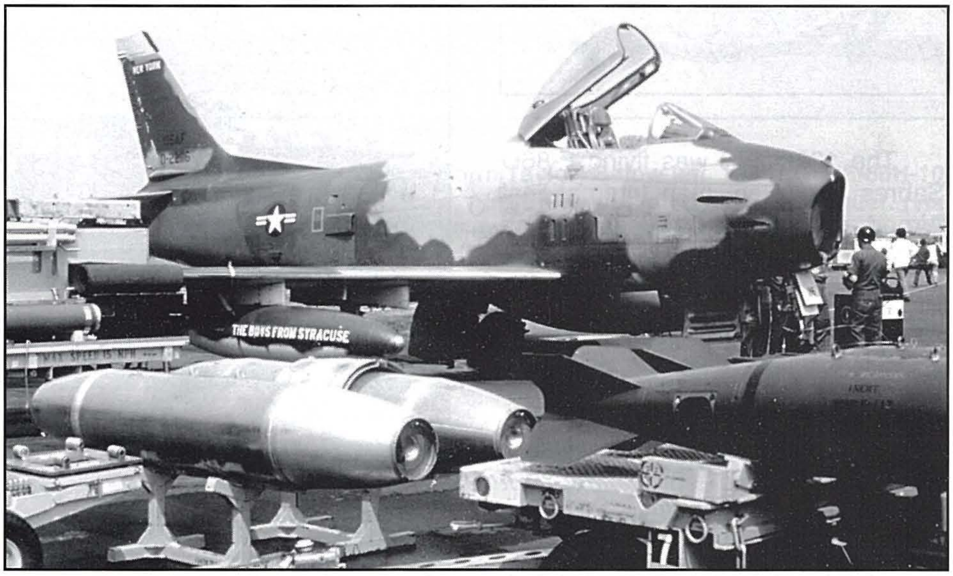
The unit was activated again during the Pueblo Crisis from 13 May through 20 December 1968. the squadron spent its active duty deployment at Cannon AFB, Clovis, NM, where it served alongside the 104th TFS. The unit flew the F-86H into 1971.

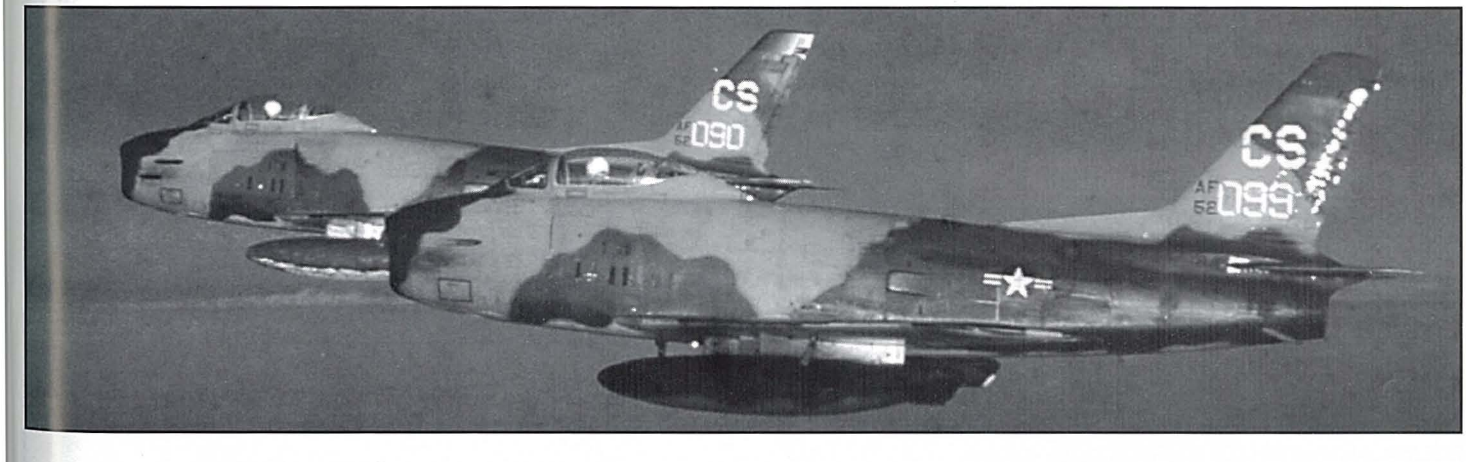




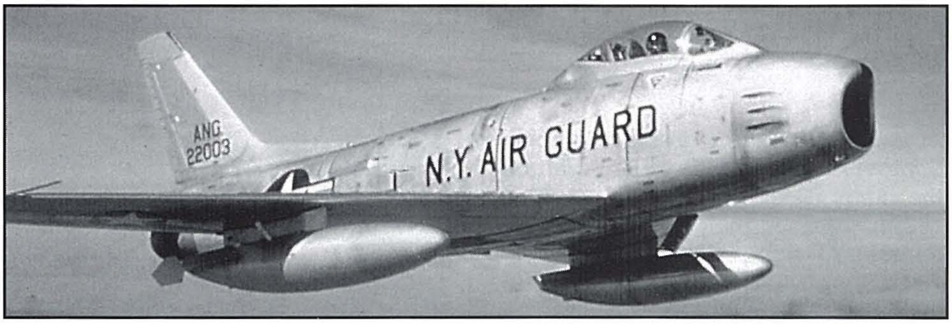
NEW YORK ANG

Above, 138th TFS F-86H-10 53-1314 in Southeast Asia camouflage at Andrews AFB on 2 June 1967. (William Swisher) At right, 138th TFS F-86H-10 52-2116 in May 1970 surrounded by weapons. Fin tip was light grey and Puerto Rico and "The Boys From Syracuse" were painted in white. The seat headrest was red. (Barry Miller) Below, two 138th TFS F-86H-10s in flight with active duty "CS" tail code applied in white. The 138th was called-up in response to the Pueblo Crisis and stationed at Cannon AFB, NM. (Stephen Pahs) Bottom, 139th FIS F-86H-1 52-2003 in flight in 1957. (ANG)

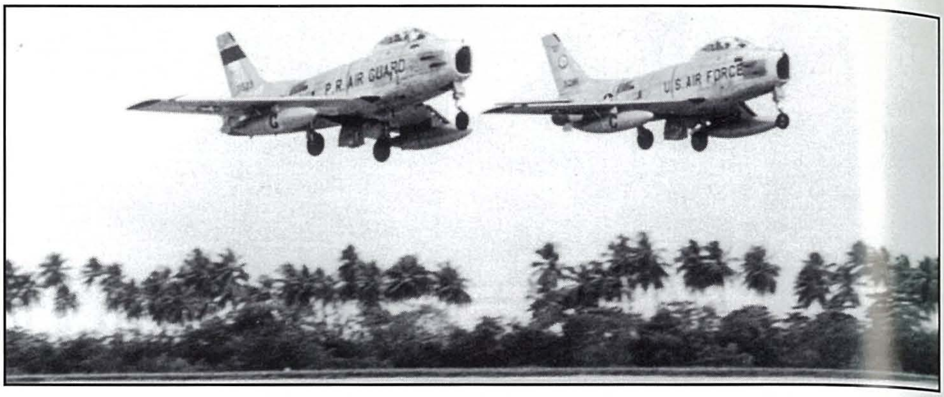


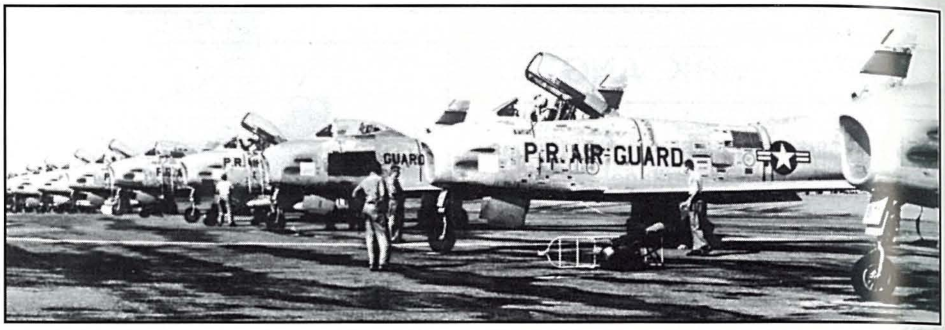


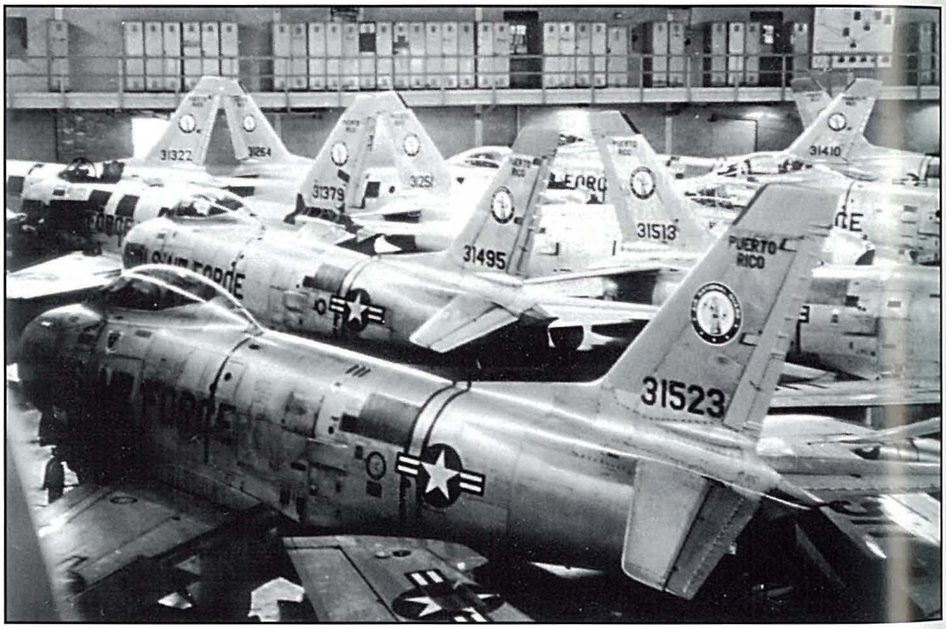
A fourth New York ANG unit transitioned from the Lockheed F-94 Starfire to the F-86H. The unit was based at Schenectady, NY, and received the F-86H in the spring of 1957. With the F-86H, the squadron was redesignated the 139th TFS. In January 1960, the unit received the Boeing C-97A and became a transport squadron.

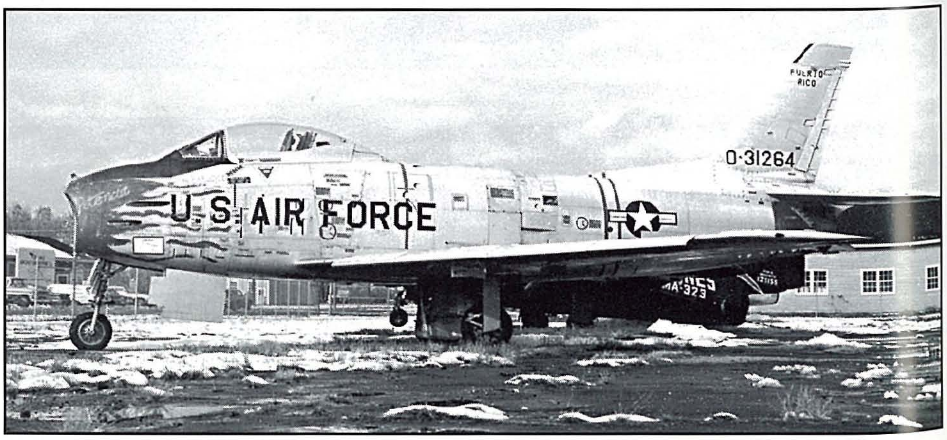


PUERTO RICO ANG, 198th TACTICAL FIGHTER SQUADRONS







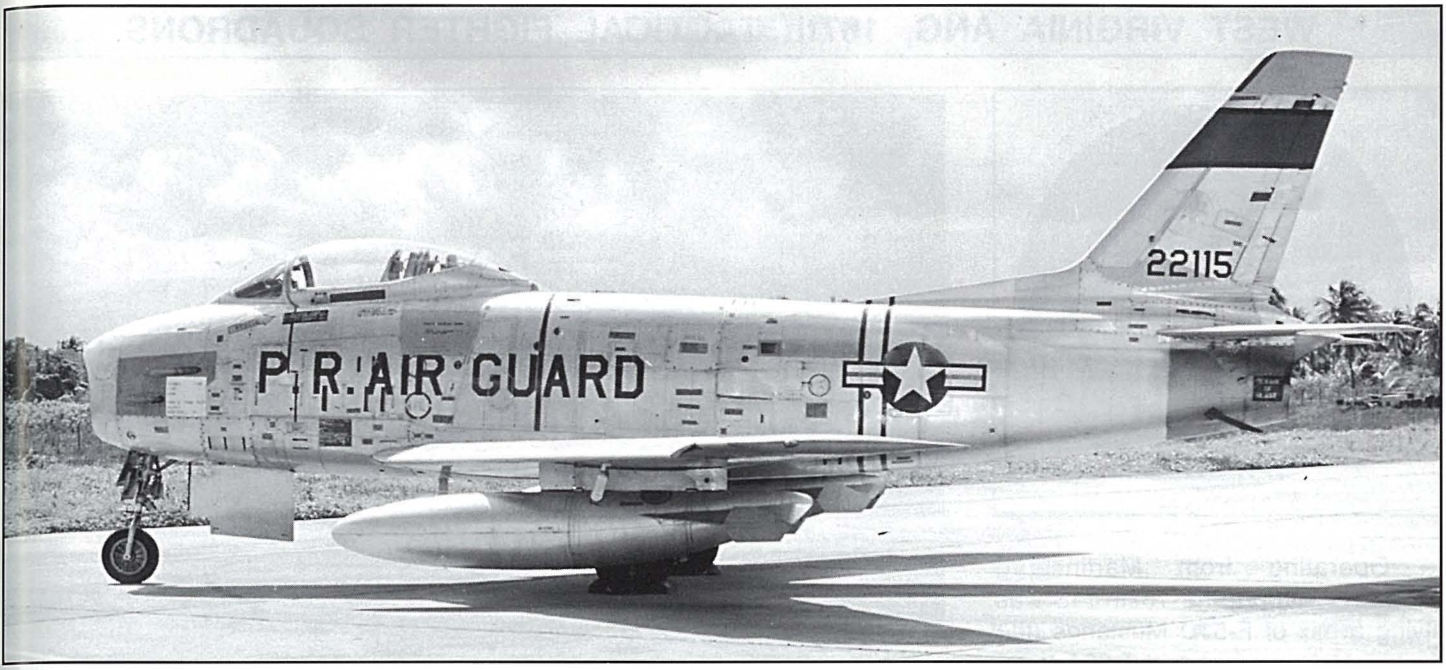


The 198th FIS was flying F-86D Sabres from San Juan International Airport when, during the second half of 1960, the unit changed its mission and designation and received the F-86H.

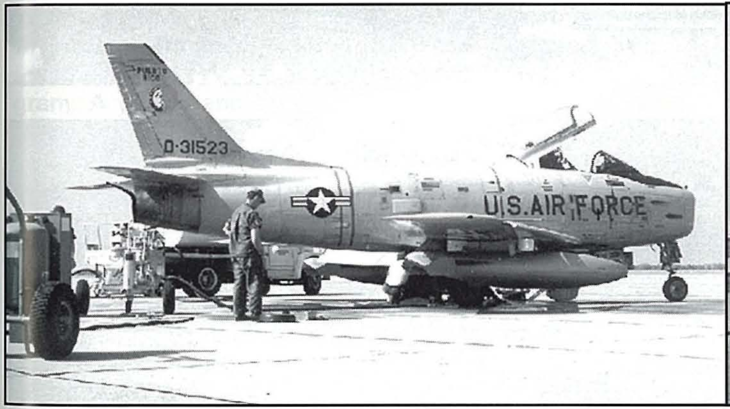
The squadron lost three F-86Hs: 53-1371, 1291, and 1323. 1371 was lost on 30 August 1961 as a result of an unrecoverable spin. The pilot ejected safely. 1291 was lost on 16 September 1961 as a result of an inflight fire. The pilot ejected safely. 1323 and its pilot were lost on 26 September 1962 as a result of a crash at sea.

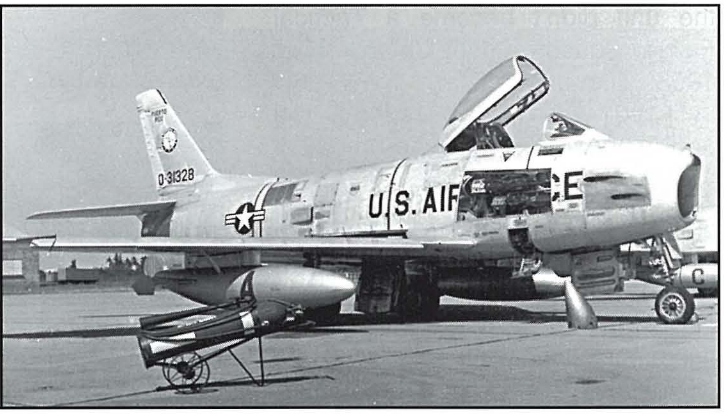
The 198th TFS flew the F-86H until the summer of 1967, when it gained the distinction of being the only ANG squadron to convert to the only tactical version of the F-104 Starfighter used by the USAF. That airplane, the F-104C with its associated two-seat TF-104D transition trainer, equipped the squadron until the summer of 1975.

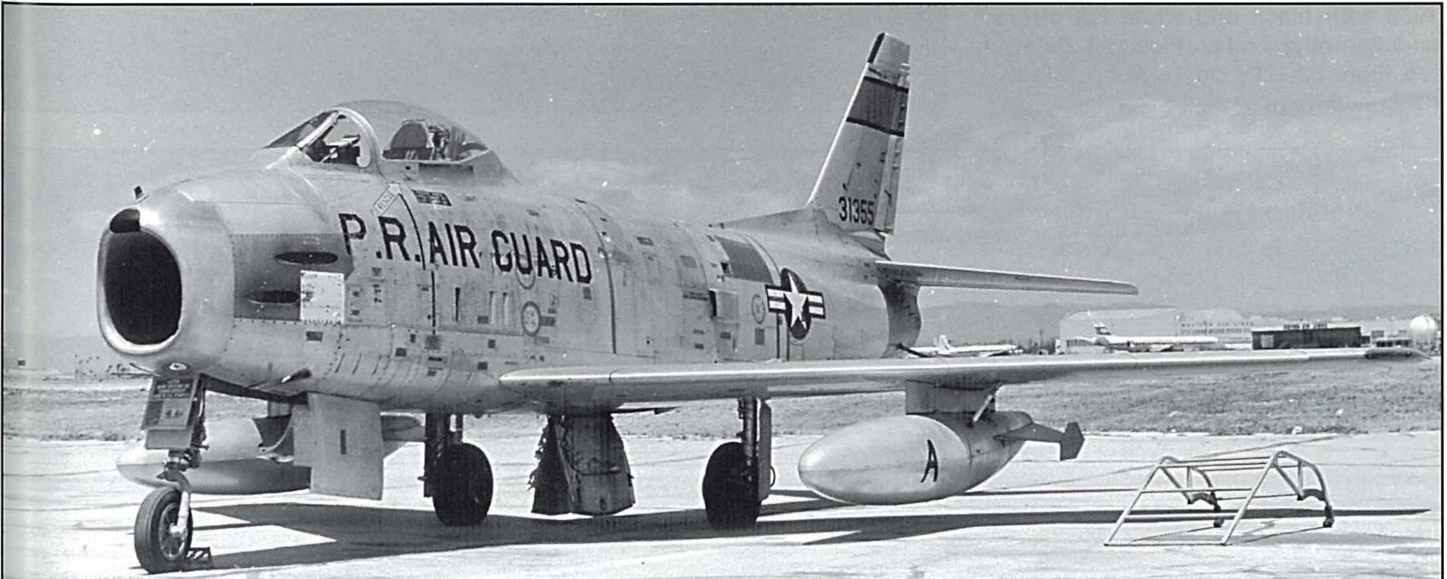
At top, two PR "H"s taking off. (Louis Santos) Above, 9-198th TFS aircraft on the ramp. (Louis Santos) Above, nine 198th "H"s in their hangar. (Louis Santos) At right, 198th F-86H-10 53-1264 aircraft had red flames added to the nose. (Tom Hildreth)



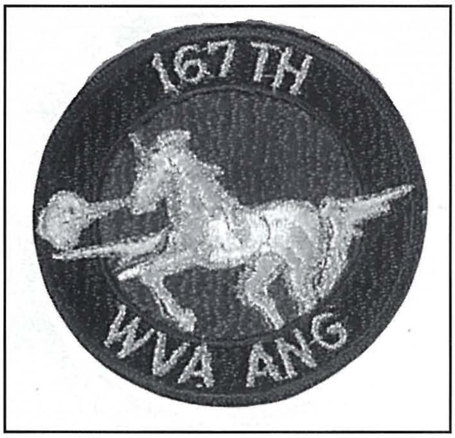
Above, 198th TFS F-86H-10 52-2115 with orange tail stripe outlined by black. (via Norm Taylor) Below left, 198th TFS F-86H-10 53-1523 with Puerto Rico on the tail and remains of the Air Guard insignia below it. Aircraft was painted in silver lacquer. (via Tom Hildreth) Below right, 198th TFS F-86H-10 53-1328 with Puerto Rico and Air Guard insignia on the tail with gun panels removed. Aircraft was painted in silver lacquer. (via Tom Hildreth) Bottom, F-86H-10 53-1355 with "A" for A-flight on the drop tank. (via Norm Taylor)

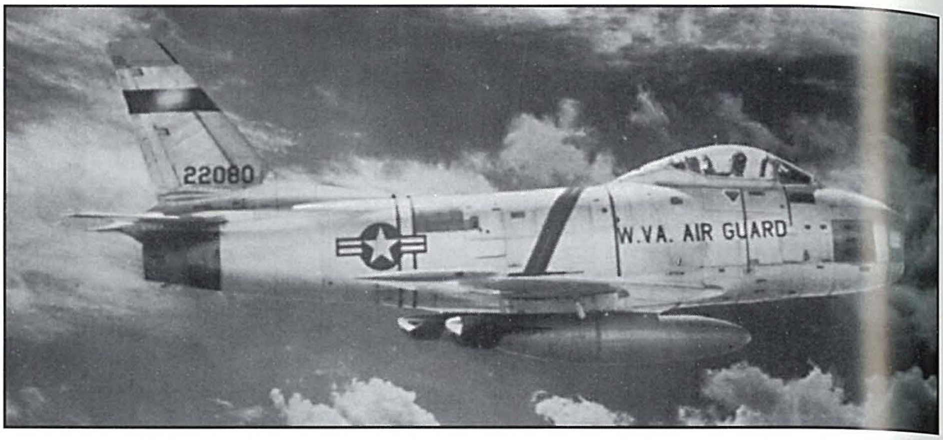




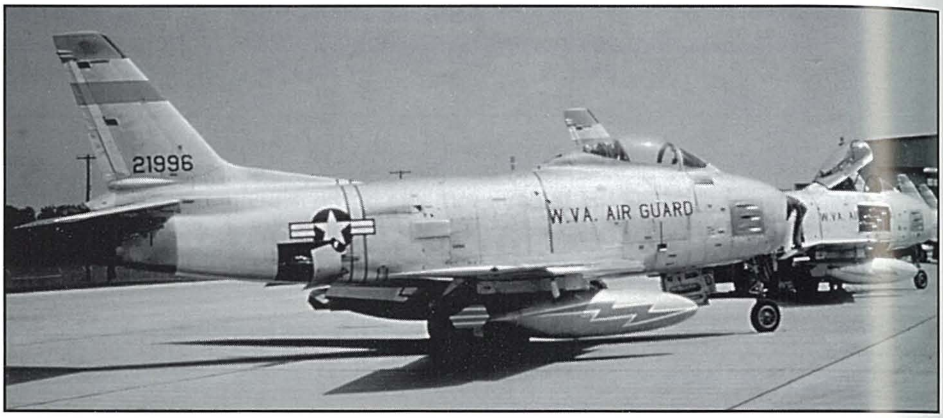


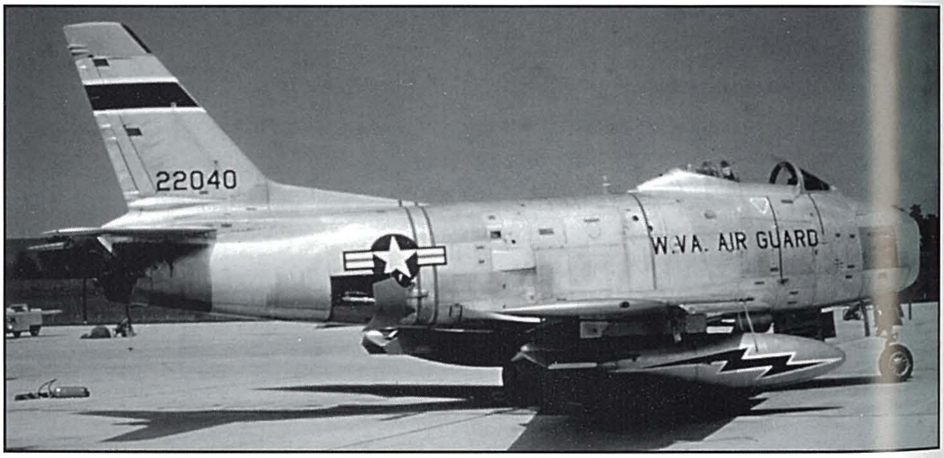
WEST VIRGINIA ANG, 167th TACTICAL FIGHTER SQUADRONS



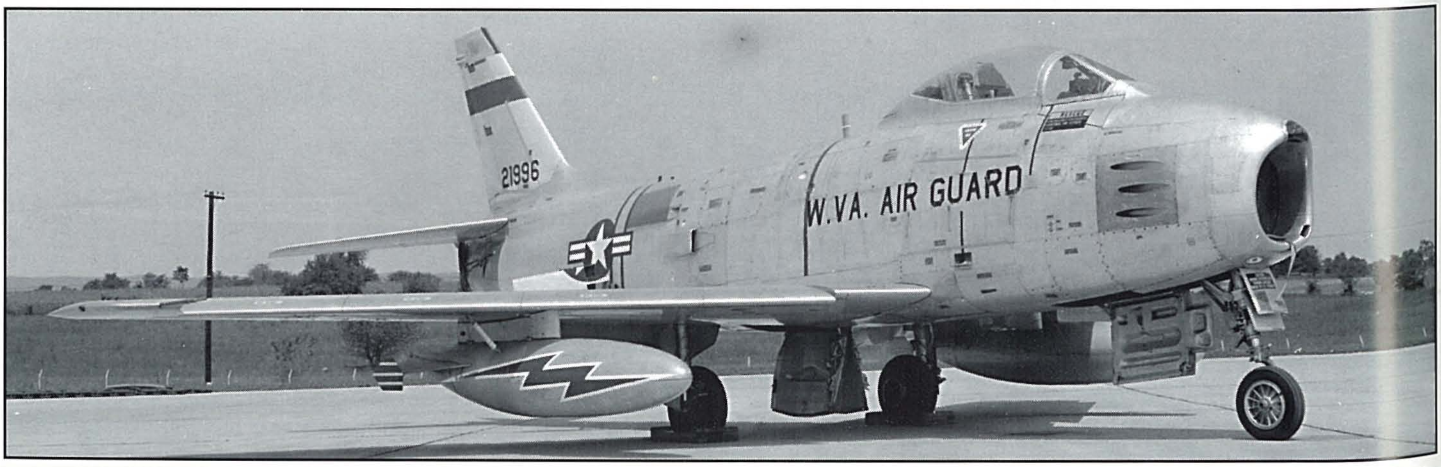


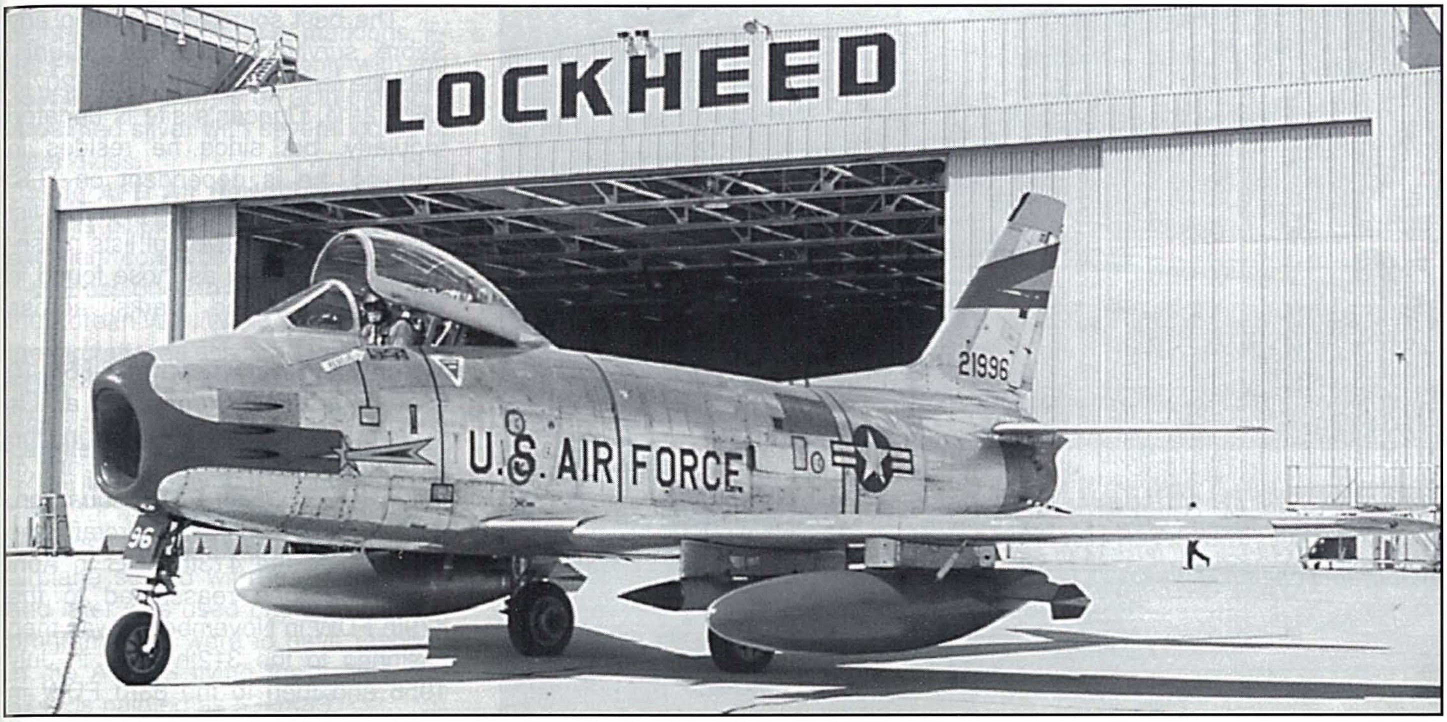
Operating from Martinsburg Municipal Airport, the 167th FIS was flying a mix of F-51D Mustangs (the last in ANG service) and T-28A trainers when, in September 1957, the unit began conversion to the F-86H Sabre. These were the first F-86Hs assigned to an ANG unit and were block 1 aircraft. Still designated a FIS after the conversion was completed, the unit didn't become a Tactical Fighter Squadron until 10 November 1958. The unit retained the F-86H until 1961 when it received the C-119 and became an Aeromedical Transport Squadron.





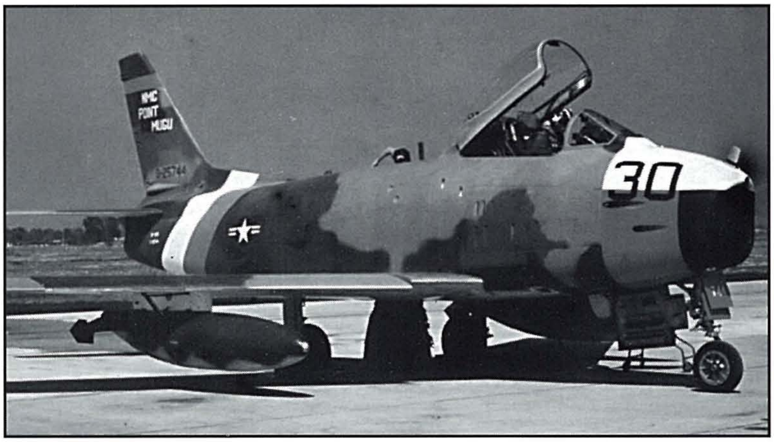
At top, 167th 52-2080 in flight. (ANG) Above right, F-86H-1 52-1996 from red flight with red tail stripe, red and white lightning bolt and fin stripes on the drop tanks. Four yellow flight aircraft are parked behind it. (Picciani) At right, black flight F-86H-1 52-2040 in August 1959 with black and white tail stripe and lightning bolts. (Picciani) Below, red flight 52-1996 on 16 August 1959. (D. Lucabaugh)

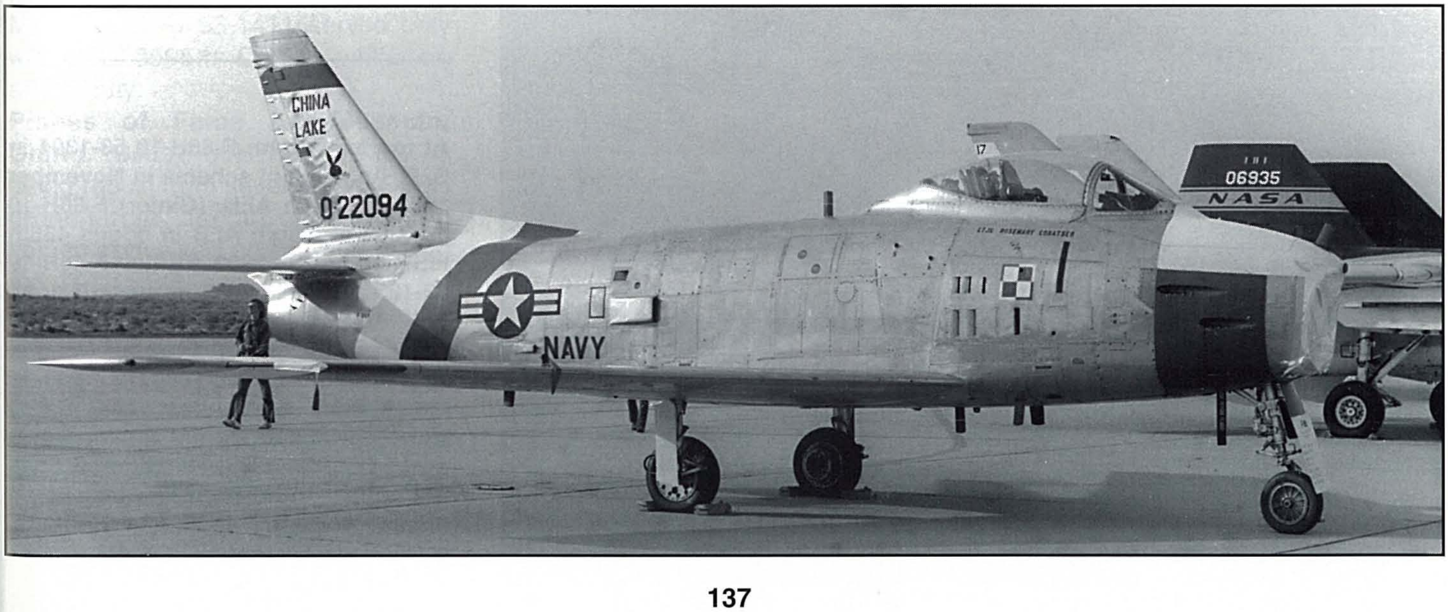




LIFE AFTER DEATH, QF-86H DRONE AIRCRAFT

Above, red-trimmed F-86H-1 52-1996 was used by Lockheed as a chase plane during the F-104G test program. A yellow and black Shooting Star was painted just aft of the gun ports. Tail flash was red and yellow. This aircraft was destroyed in 1972 while testing the drone program's destruct system. (Lockheed) After retiring from the Air Guard, 32 of the "H"s became targets at NAS Point Mugu and NAS China Lake. At right, F-86H-5 52-5744 during 1976 had orange and white trim added. It was shot down on 24 January 1979. (Kaston) Below, F-86H-5 with Black Bunny on the tail and orange and white trim, 52-2094 is seen at China Lake in June 1981. (Scharringa via Norm Taylor) For the complete story see Naval Fighters #58 QF-86E/F/H/Sabre Full Scale Aerial Targets by Duncan Curtis.





F-86H SURVIVORS

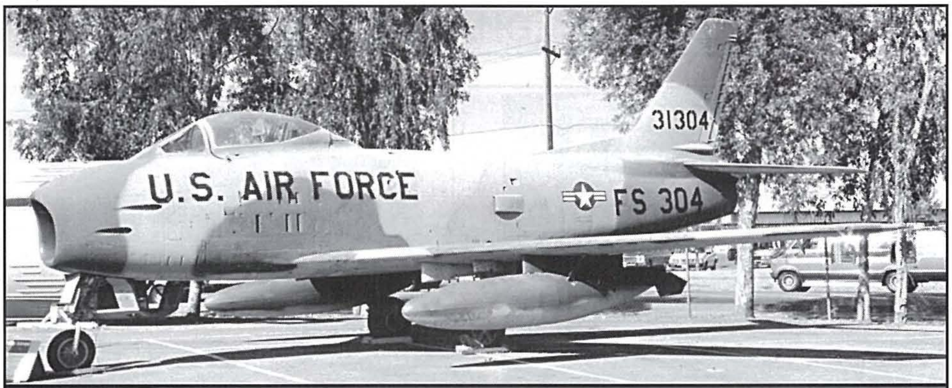
The best source for locating any Sabre survivors is Duncan Curtis' web site (author of NF58, NFAF207 & NFAF211). Duncan's site is updated regularly, but since he resides in England, he is dependant on U.S. observers for status changes. The list below is not inclusive but lists museum aircraft as well as those found in small towns and parks across America.

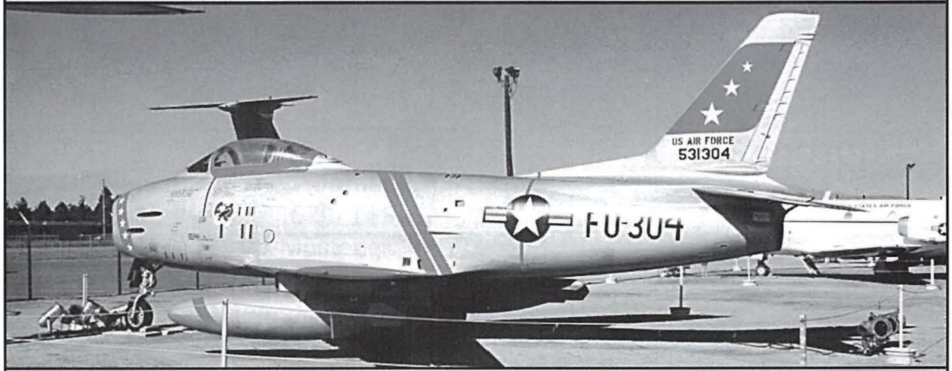
March Field Air Museum: F-86H-10 53-1304 is displayed outdoors and is in good condition. Painted in the markings of the 435th FDS, a unit of the 479th FDW, an F-86F squadron, not an F-86H unit. The aircraft was delivered to the 413th FDG in April 1955 and then reassigned to the 479th FDW in November. It was then assigned to the 312th FBW in July 1956 and then to the 83rd FDW in October. In December 1957 it started a series of assignments to various ANG units and was removed from inventory in June 1970.

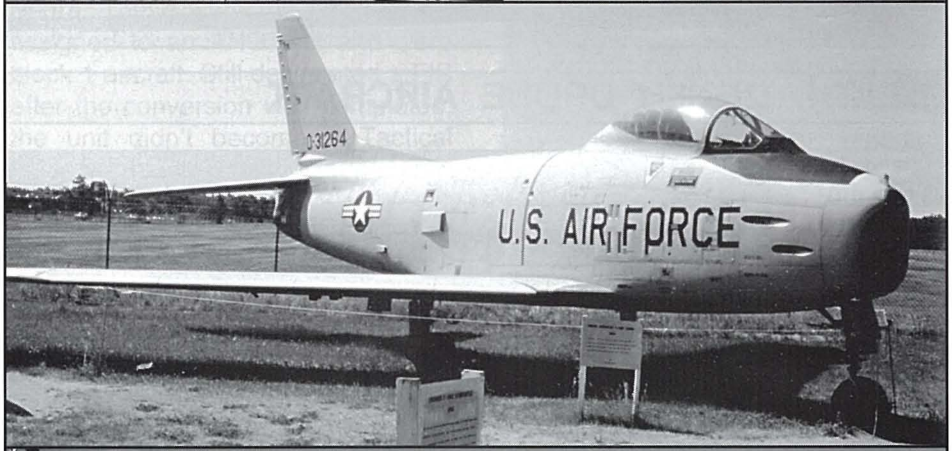
Eglin AFB: F-86H-10 53-1264 had been on display here at one time.

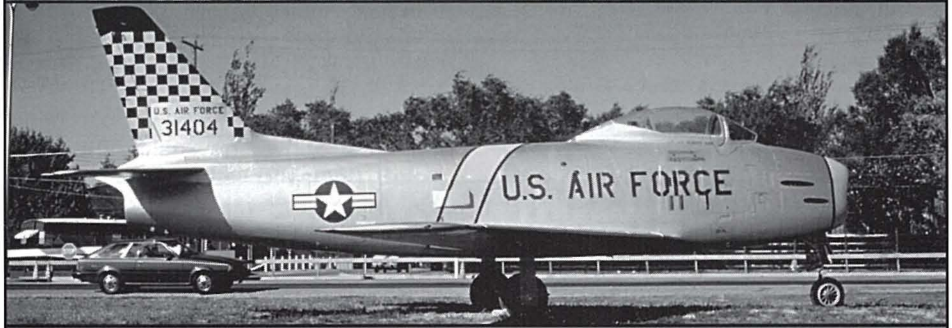
Cannon AFB, Clovis, NM: F-86H-10 53-1251 is on display outdoors at Cannon AFB in an on-base park. The plane is well-maintained, though the windscreen and canopy are painted gloss black. The airplane is in the markings of the 474th FBG, which was based at Cannon. The tail number painted on the airplane is 53-1404.

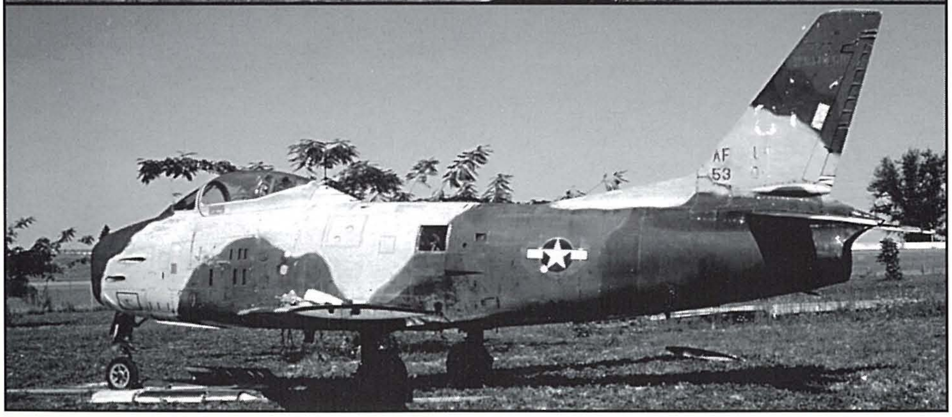
Museum of Aviation, Warner Robbins AFB, GA: The museum is











At top to bottom: F-86H-10 53-1304 in S. E. Asian paint scheme in November 1986 at March AFB. (Ginter) F-86H-10 53-1304 at March AFB in bogus 435th FIS markings in 2003. (Ginter) F-86H-10 53-1264 at Eglin AFB in over-all grey. Date unknown. (B. Miller) F-86H-10 53-1251 painted as 53-1404 at Cannon AFB on 15 October 1980. (B. Rogers via Kaston) ex-Maryland ANG Sabre without wings at Warner Robbins AFB on 15 October 1983. This aircraft does not appear to be 53-1511 which is on display currently at Warner Robbins. (Leavitt via Kaston)

located near Warner-Robbins AFB in GA. It is displayed indoors and is in excellent condition and appears to be painted in 3595th CCTW markings. F-86H-10 53-1511 served only with the 3595th CCTW while on active duty. It is painted silver with several coats of clear gloss.

Castle AFB Air Park: F-86H-10 53-1230 is displayed outdoors and is in excellent condition but painted as an F-86E assigned to the 51st FW during the Korean War. While on active duty, the aircraft was assigned to the 413th FDG, 479th FDW at George AFB, CA.

Langley AFB Air Park: F-86H-5 52-5747 is displayed outdoors on a pedestal and is painted in a two-tone compass ghost grey scheme. This airplane served with the 474th FBG and later was used briefly in training programs that were to have resulted in the AFRES flying the F-86H. 52-5747 is painted as 53-1483.

Syracuse ANG Base, NY: F-86H-10 53-1519 is on display at the Syracuse ANG Base. This airplane served on active duty with the 3595th CCTW only.

Volk ANG Base, WI: F-86H-10 53-1358 is displayed outdoors at the Wisconsin ANG Headquarters, Volk ANG Base. The aircraft served actively with the 3595th CCTW only.

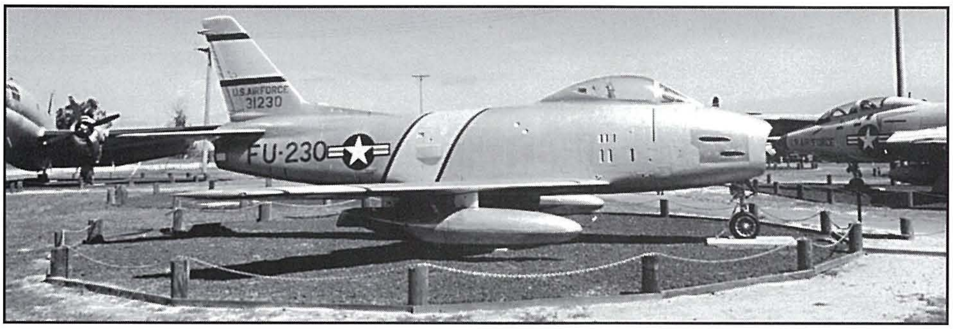
Hanscom AFB, MA: F-86H-10 53-1328 was assigned to the 413th FDG, 312th FBW and the 83rd FDW.

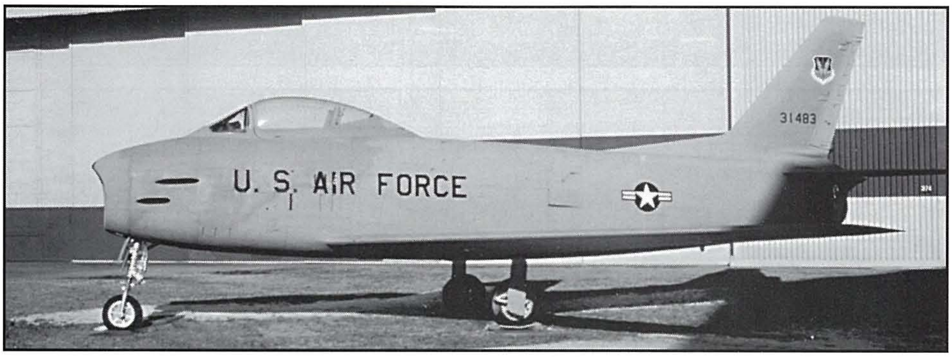
Delaware ANG Wilmington, DE: F-86H-10 53-1296 is displayed in its original ANG markings and served on active duty with the 312th FBW.

Maryland ANG Base, Baltimore, MD: F-86H-10 53-1411 served only with the 3595th CCTW while on active duty.

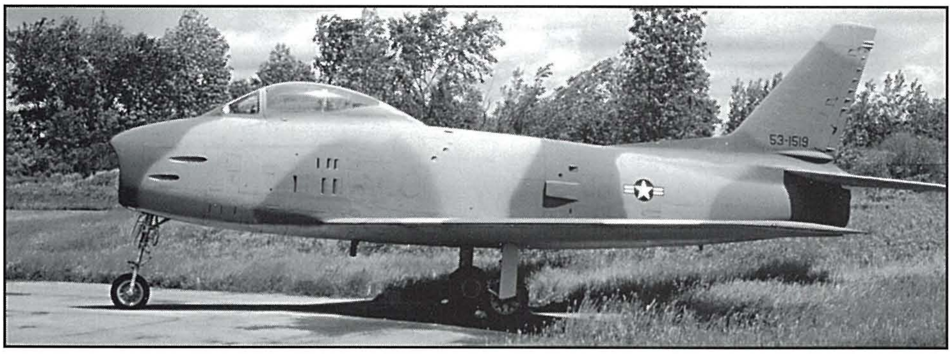
Planes of Fame Air Museum, Chino, CA: F-86H-10 53-1351 is being rebuilt from several ex-QF-86H drone/target aircraft. The aircraft served exclusively on active duty with the 474th FBG.

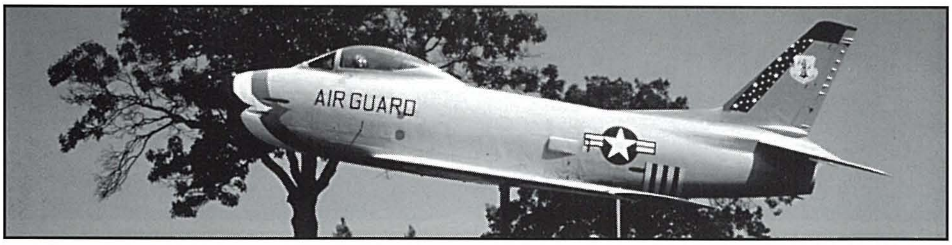
United States Air Force Museum, Dayton, OH: F-86H-10 53-1352 is perhaps the most uniquely displayed Sabre H to be found. Displayed indoors, the airplane has the skin removed so that the internal components can be clearly seen. This airplane served actively only with the

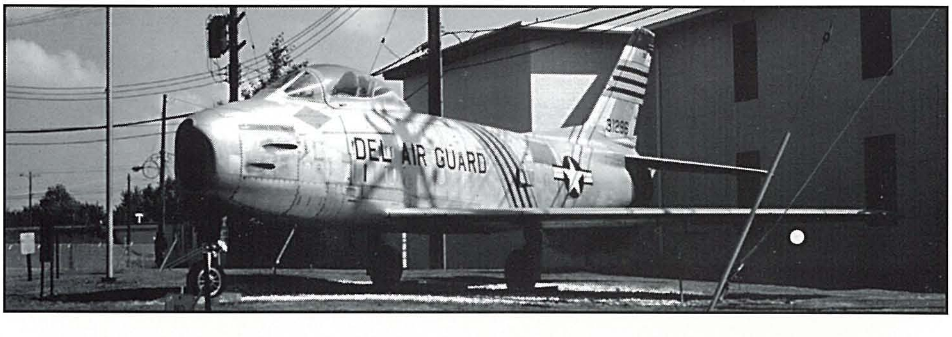




At top, F-86H-10 53-1230 painted as a Korean War F-86A/E at Castle AFB in 1993. (Ginter) Above, F-86H-5 52-5747 painted as 53-1483 in bogus compass ghost grey scheme in February 1984. (B. Miller) Below, F-86H-10 53-1519 in SEA markings at Syracuse. (via Kaston) Below middle, F-86H-10 53-1358 at Volk Field in June 1983 with blue-white-red T-bird style nose stripes and yellow and black striped speed brakes. (t. Paskowski) Bottom, Delaware ANG F-86H-10 53-1296 on display in it's original ANG markings on 12 September 1980. (Barry Roop via Kaston)







3595th CCTW.

Experimental Aircraft Association (EAA) Museum, Oshkosh, WI: F-86H-1 52-1993 is displayed outside on a pedestal, near the front gate of the museum. This aircraft served with the 4925th Test Group.

SAC Museum, NE: F-86H-10 53-1375 hangs from the ceiling.

County Airport (George AFB), North of Apple Valley, CA: F-86H-10 53-1515 was on display at George AFB when it was closed. This aircraft served on active duty only with the 3595th CCTW.

Pima County Air Museum, Tucson, AZ: F-86H-10 53-1525 is currently displayed as a 328th FBS aircraft from the 474th FBW. Previously, it was displayed in AFRES markings. The aircraft was assigned to the 3595th CCTW and the 2596th AFRES.

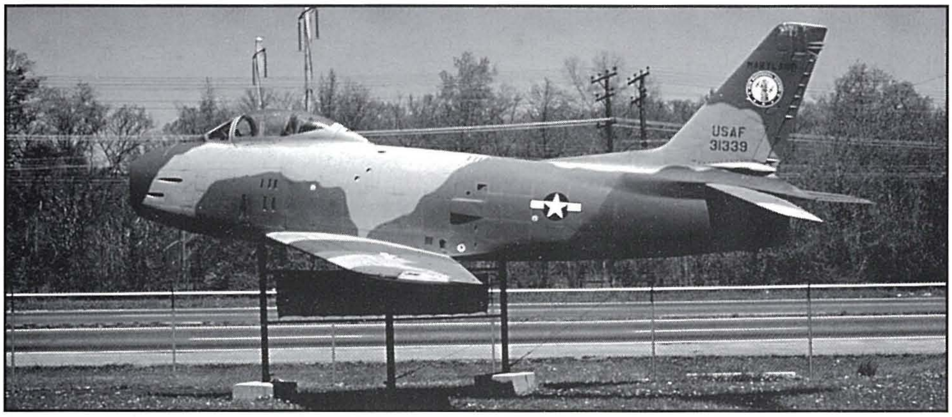
McCook Airbase Historical Society, at the former McCook Army Airbase, McCook, NE: F-86H-10 53-1503 was on active duty exclusively with the 3595th CCTW.

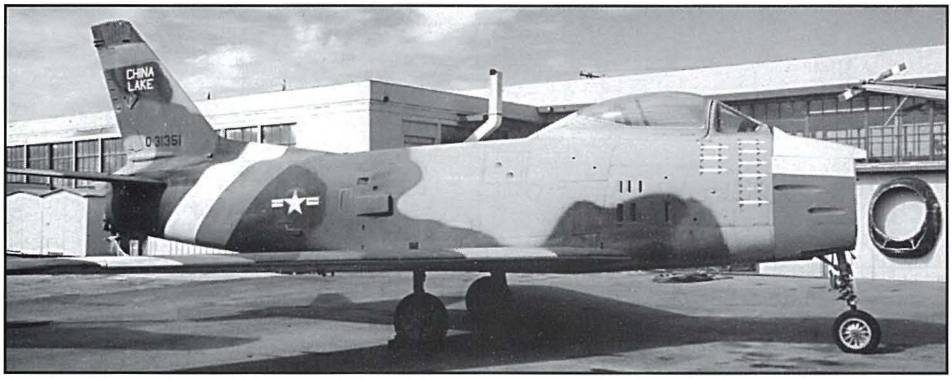
Front Royal, VA: F-86H-1 52-2044, named "Howdy Doody", is on display at the airport in Front Royal, VA. The product of an intensive restoration, with some parts and work still to be added. It was formerly assigned to the 167th TFS, WVANG. The airplane served with the 312th FBW while on active duty.

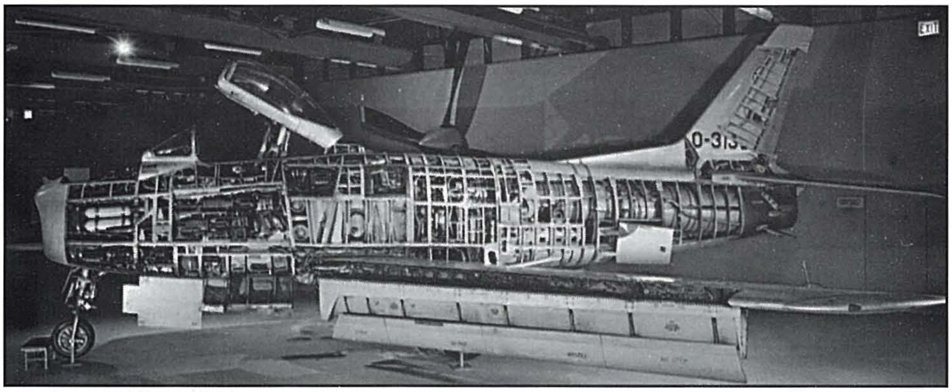
Danville, IL (Airport Authority): F-86H-1 52-1983 is on display here.

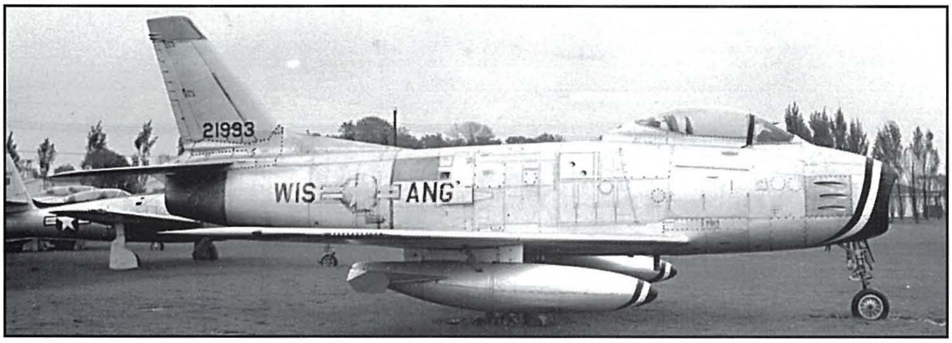
Martinsburg ANG Base, WV: F-86H-1 52-2058 is located at the Eastern West Virginia Regional Airport and is displayed outdoors. The airplane served with the 312th FBW.

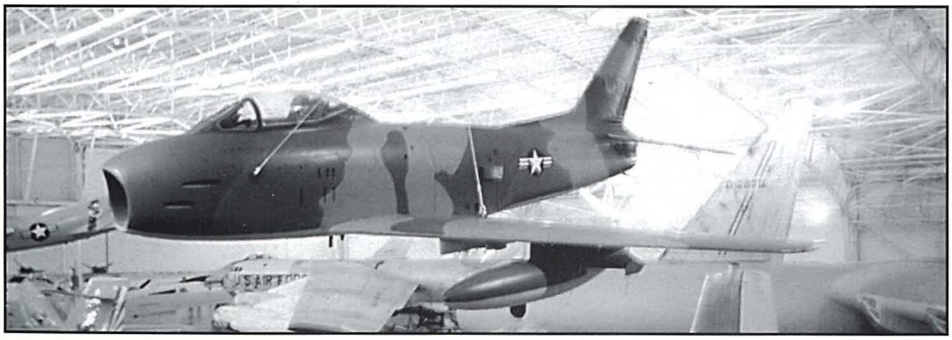
Western Aerospace Museum, Oakland, CA: F-86H-10 53-1396 is on display with the tail of F-86H-1 52-











Top to bottom: F-86H-10 53-1339 at Martin Field in July 1974. (Picciani) F-86H-10 53-1351 minus intake at Planes of Fame Museum in 2003. (Ginter) USAF Museum's F-86H-10 53-1352. (USAF) EAA Museum's F-86H-1 52-1993. (Menard) SAC Museum's F-86H-10 53-1375 in 1999. (Ginter)

2050 attached. 53-1396 was assigned to the 3595th CCTW while on active duty.

Pacific Coast Air Museum, Santa Rosa, CA: F-86H-10 53-1328 which served with the 413th FDW, 312th FBW, and the 83rd FDW is undergoing restoration.

McIntire Air National Guard Station, Memorial Park, Eastover, SC: F-86H-10 53-1386 served on active duty with the 3595th CCTW.

Pate Museum of Transportation, Cresson, TX: F-86H-10 53-1239 is on outdoor display and served with the 413th FDG, 312th FBW, and 83rd FDW.

Ellicott Maryland, VFW Post 7472: F-86H-1 52-2048 served with the 312th FBW and the 3595th CCTW.

Churubusco, IN: F-86H-10 53-1298 served with the 3595th CCTW.

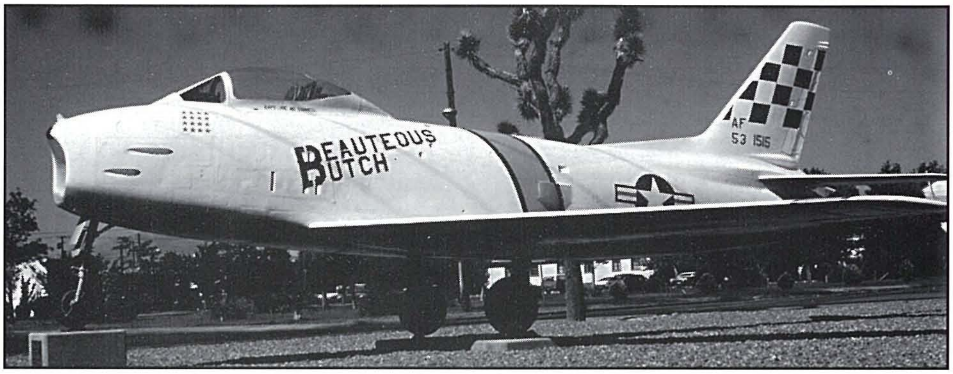
South Dakota Air and Space Museum, Ellsworth AFB, Rapid City, SD: F-86H-10 53-1302 served with the 413th FDG and the 83rd FDW.

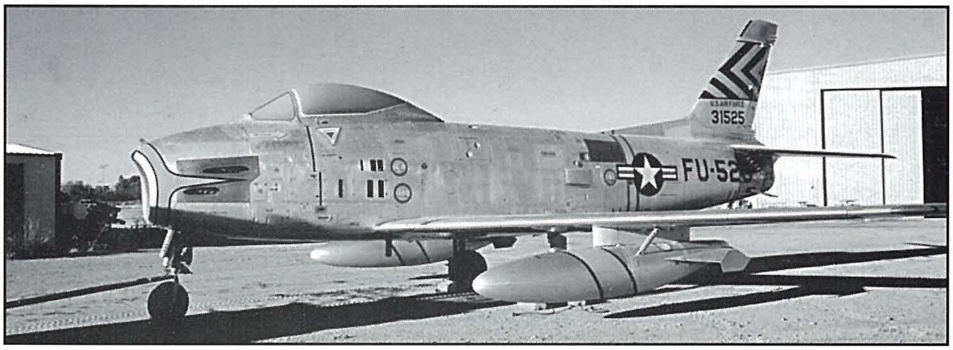
Wings Over The Rockies Aviation and Space Museum, Denver, CO: F-86H-10 53-1308 is on display at the old Lowry AFB. It served with the 413th FDG, 83rd FDW, 4th FDW, 413th FDG.

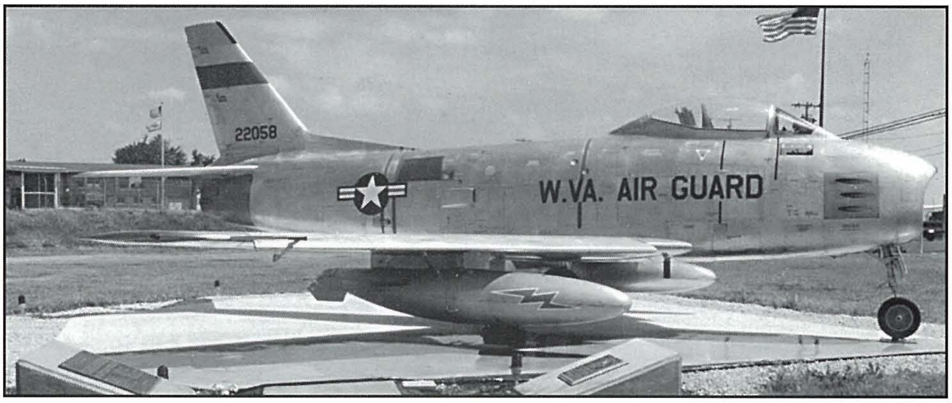
Beaver Falls, PA: F-86H-10 53-1338 is located at the Beaver County Airport, next to the terminal. It served with the 312th FBW and the 413th FDG.

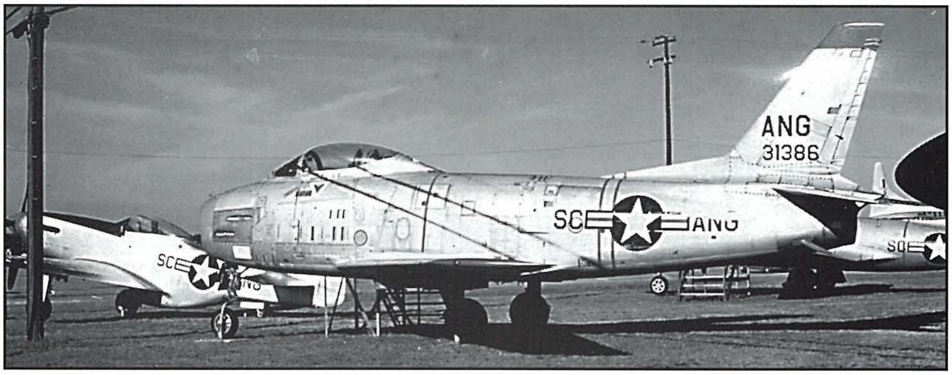
Otis ANG Base, Camp Edwards, MA: F-86H-10 53-1377 is painted as 53-1235. It served with the 3595th CCTW.

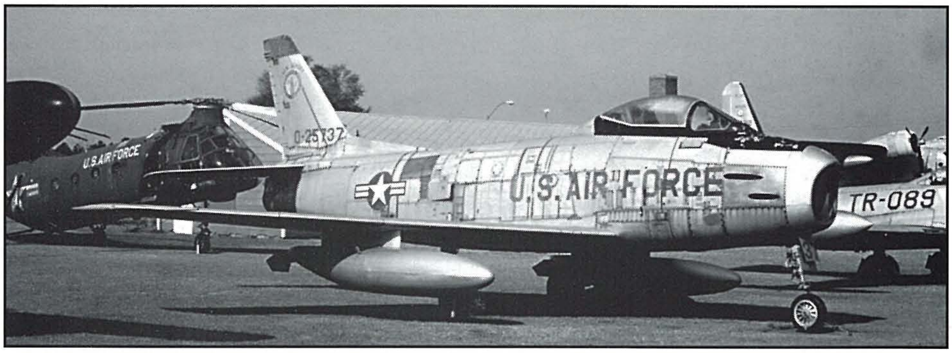
Combat Air Museum, Topeka, KS, Forbes Field: F-86H-10 53-1300 served actively with the 3595th CCTW, and then several ANG units



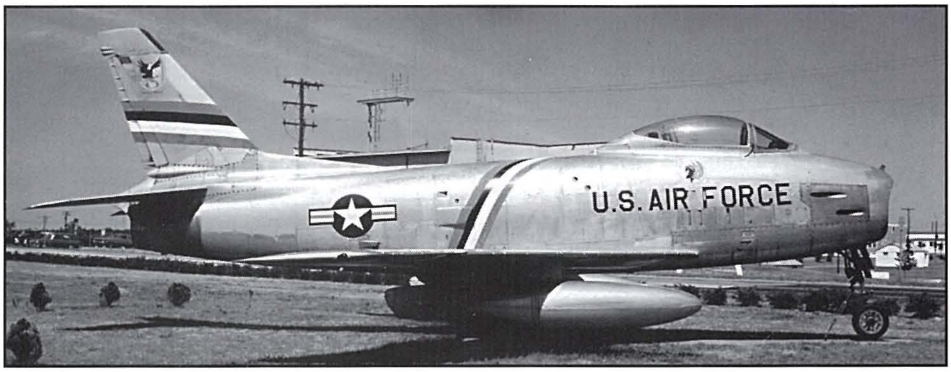


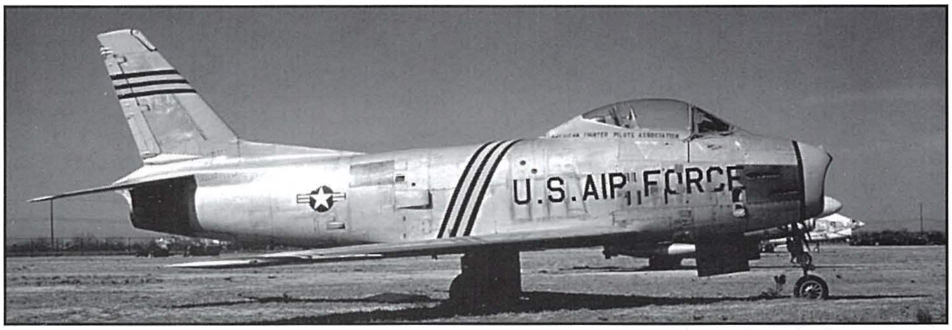


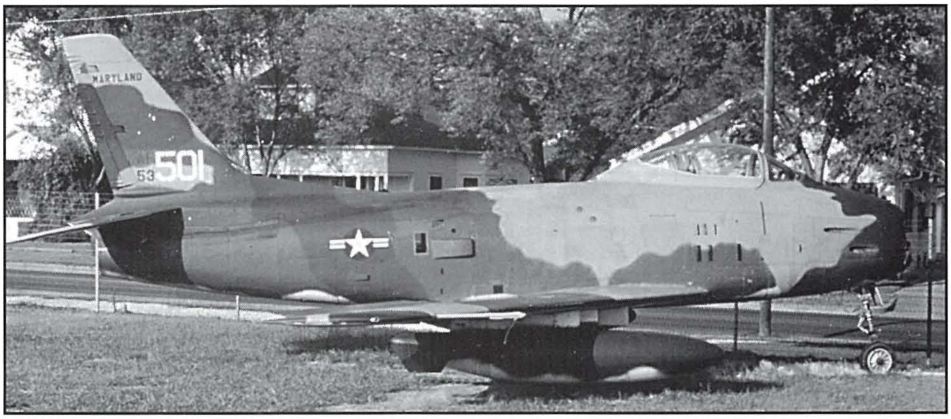


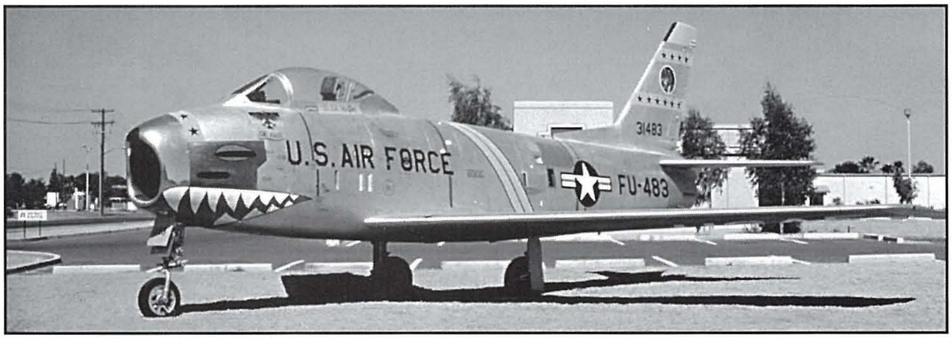


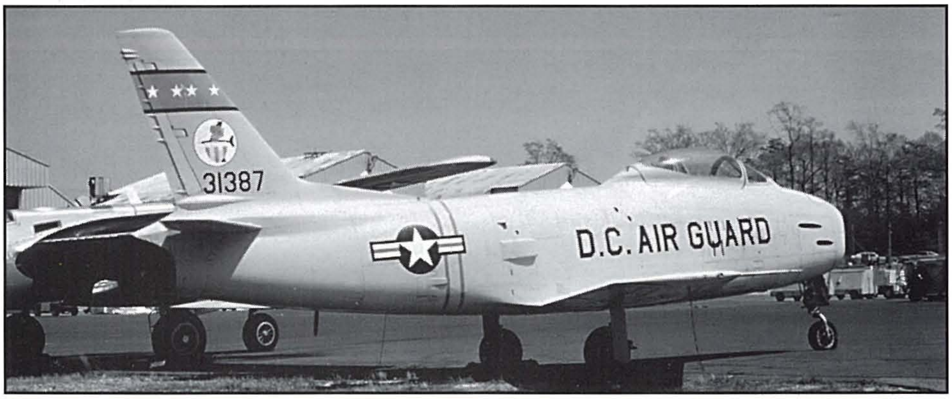
Top to bottom: F-86H-10 53-1515 in McConnell's Korean War F-86E markings at George AFB in July 1974. (B. Miller) Pima Air Museum's F-86H-10 53-1525 in 1999 in the markings of 429th FBS. (Ginter) F-86H-1 52-2058 at Shepard Field, Martinsburg, WV. (Eric Wolfinger) 53-1386 at McIntire ANG base, Eastover, SC, in December 1973. (D. kuykendall) F-86H-5 52-5737 at the Florence, SC, Air Museum on 30 January 1988. (Craig Kaston)











before retiring in July 1970. It then went to the Hawkeye Institute of Technology, Waterloo, IA, before arrival at the Combat Air Museum.

Mid America Air Museum, Liberal, KS: F-86H-10 53-1501 is painted as a Korean War F-86A flown by the 4th FW. This aircraft served with the 3595th CCTW.

F-86H on the Civil Register: F-86H-10 53-1250 is registered as N31250. It was registered with Aeroplace Services, Inc., Midlothian, TX. It has since been registered to Mr. Raub Harry, Waxahachie, TX, and was recently listed with Courtesy Aircraft Sales before being listed as sold. It was on active duty with the 474th FBG and the 83rd FDW.

American Fighter Pilots Museum: F-86H-10 53-1251 has been on display at the American Fighter Pilots Association.

Luke AFB: F-86-10 53-1483 is on display at Luke AFB, AZ.

Other Identified Survivors:

52-1976, unknown park.
53-1253, Jamestown, ND.
53-1255, Ft. lauderdale, FL.
53-1306.
53-1370, Goldsboro, NC.
53-1372, Hettinger, ND.
53-1387, D.C. ANG, location unknown.
53-1392, Walhalla, ND.
53-1528, Cincinatti, OH.

Top to bottom: F-86H-10 53-1308 at Lowry AFB, Denver, CO, on 29 July 1968. Stripes were red-black-white-powder blue. (Nick Williams) F-86H-10 53-1251 in March 1974 at the American Fighter Pilots Association. Trim was yellow and black, and the canopy frame was yellow. (Picciani) ex-Maryland ANG F-86H-10 53-1501 at Wichita, Kansas, East High School in 1972. The aircraft is currently displayed indoors at the Mid America Air Museum, Liberal, KS. (B. Miller) F-86-10 53-1483 on display at Luke AFB, AZ, in July 1976. Trim was yellow. (Norm Taylor) F-86H-10 53-1387 in July 1974 in grey with yellow-orange tail stripe. Location unknown. (via Kaston)

TACTICS EVALUATION
F-86H VERSUS F-100D, F-104C, F-105D, AND F-4C

The F-86H was used in evaluation programs to determine the best tactics to use against the MiG-17, the airplane frequently used by the NVAF. According to an article in the fall 1993 issue of "Sabre Jet Classics", the quarterly journal of the Sabre Jet Historical Society, some of this evaluation work was done in August 1966, though apparently at that time the F-86H was simulating the MiG-19, not the MiG-17. However, a document produced by the 6002nd Standardization / Evaluation Group (PACAF) in May 1965 points to similar evaluations being performed before that date. Where the evaluations took place, what units were involved and who the pilots were wasn't specified. The F-86H was flown against the F-100D, F-104C, F-105 (presumably the F-105D) and the F-4C. F-86H/F-100D evaluation missions were flown from 26-30 April. Similar F-86H/F-105D evaluation missions were also flown during that period. From 3-7 May, F-86H/F-104C and F-86H/F-4C evaluation missions were flown. For the sake of clarity, the preliminary conclusions from the aforementioned document are quoted.

"F-100 defender vs F-86H attacker: Hard turns are effective in defeating missile attacks. A maximum performance turn will cause an overshoot during the follow-up gun attack, only if the F-86H does not employ the hi-speed yo-yo. An immediate escape maneuver for separation is the best course of action following an overshoot. Best F-100 escape maneuvers appear to be a descending turn in the direction that will place the attacker on the outside of the turn. A straight away descending escape should be continued, maneuvering as necessary to spoil a tracking solution until well outside effective range, Consideration should be given to maneuvering into the attacker's blind area if the situation warrants."

"The F-86H defender vs F-100 attacker: F-86H defensive turn was effective in forcing an overshoot if the F-100 continued the pursuit curve attack in the plane of the F-86's turn. To retain an airspeed advantage, the F-100 would be forced to break off the attack at extreme gun firing range (3500-3000). If the F-100 closed to a shorter range, airspeed would be rapidly dissipated. The F-86 could then pull into the vertical plane, forcing the F-100 to a 12 o'clock low position. A simple roll off would then position the F-86 in the gun envelope. In this situation, since the F-100 does not have maneuvering airspeed, his only chance for survival is to unload (take-off the angle of attack) and move outside gun range. Zero to 1 G sporadic maneuvering should be employed until adequate separation is achieved."

"F-105 defender vs F-86H attacker: F-105 hard turn is effective against AIM-9B attack; neither hard turns nor breaks appeared effective against gun attack. High G rolls produce at best a temporary overshoot. Most promising is the immediate initiation of a max performance split S entry into a diving spiral, then gradually relaxing G to attain escape Mach of .95 plus. Once escape Mach is achieved, F-105 cannot immediately pull up into the F-86H attack without again becoming vulnerable."

"F-105 attacker vs F-86H defender: F-105 1.2 - 1.3 Mach afterburner attacks were successful down to 3000 - 2500 feet firing ranges; these attacks always resulted in an overshoot. If attempt is made to follow F-86H through defensive hard turn or break, airspeed bleed off is extremely rapid. F-105 yo-yo maneuver and slow speed, tracking attempts were successfully countered by F-86H reversal, pull up and roll off to a 6 o'clock position similar to the F-100 situation. F-105 should use quarter roll away diving break-off before speed has bled below .95 mach to achieve most successful withdrawal."

"F-104 defender vs F-86H attacker: Hard turns, breaks and zooms are ineffective against gun attacks. Diving spiral employing afterburner, initiated down with positive G, then relaxing to 0-1 G, was effective in achieving separation."

"F-104 attacker vs F-86H defender: Similar to F-105. Attacks at .9 Mach or below could be successfully countered by defender through the use of a hard turn before attacker's effective gun range was reached. Following the attack a diving escape is preferable to a zoom climb. The extremely small frontal silhouette of the F-104 multiplied the defender's visual acquisition problems despite radio calls from attacking pilot giving range and position."

"F-4C defender vs F-86H attacker: Hard turns and breaks, with or without AB, generally proved to be ineffective. A straight ahead or slight turn rolling accelerating dive 0-1G was most effective; additional 'jinking' (rapid strong maneuvering) or sporadic rolling complicates attacker's tracking problems if defensive maneuver is not begun until attacker is at ranges of 4000 feet or less."

F-4C attacker vs F-86H defender: F-4C could track sufficiently during break and hard turn to claim a gun kill on approximately 50% of attacks, assuming presence of gun and computing sight."

The general statements at the end of the document showed that escape maneuvers performed for the sake of gaining separation from the attacker were a better course of action than attempting to maneuver to for the attacker to overshoot. Diving escape maneuvers employing 1 G or less were felt to be the optimum for the F-100, F-104, F-105, and F-4.

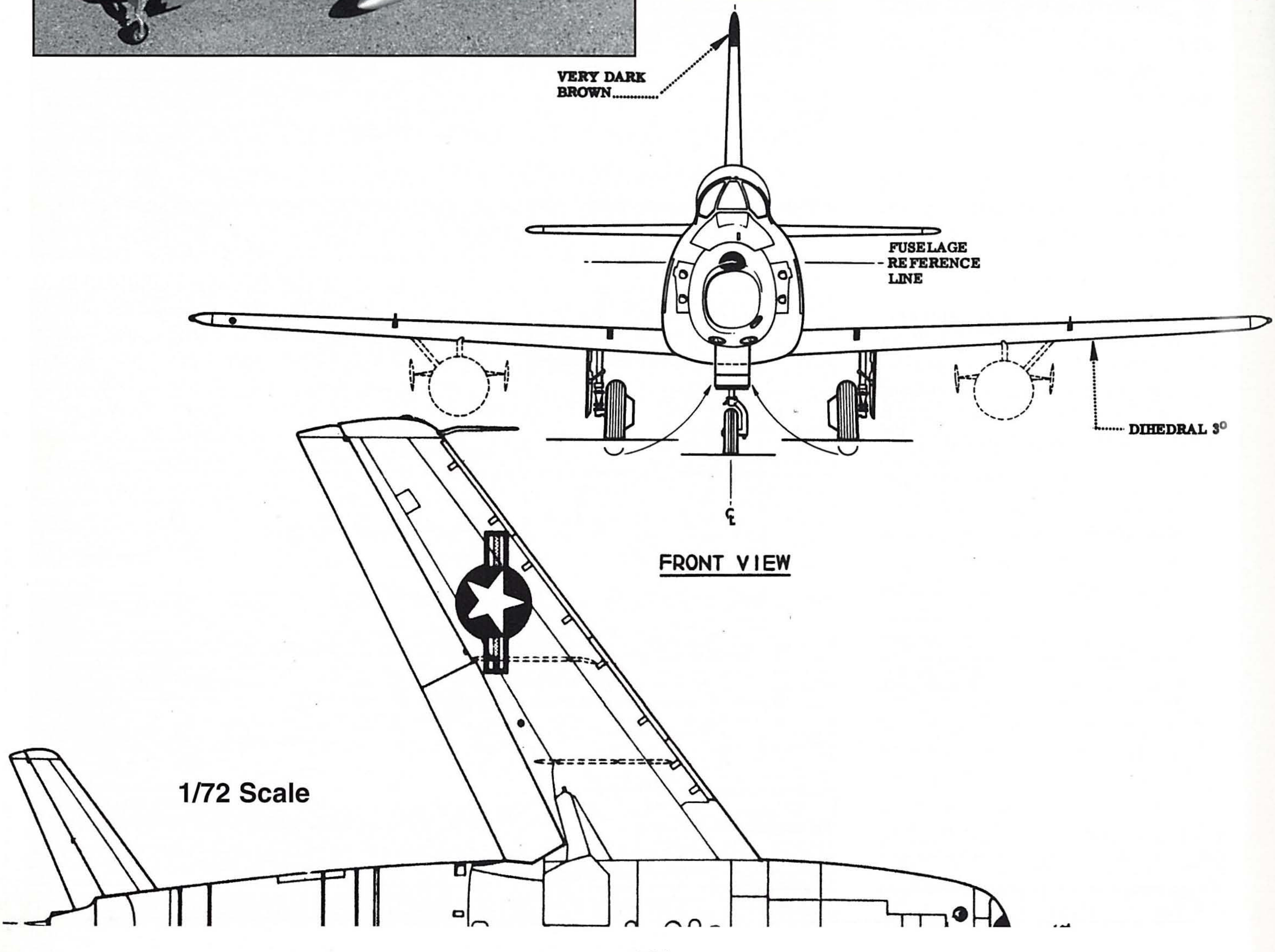
The AIM-9B appears to have operated within distinct parameters when the using fighter was maneuvering and this caused "severe operational" limitations regarding its use. Surprise attack, which doesn't require strong maneuvering, was suggested as offering the best probability of successful employment of the weapon.

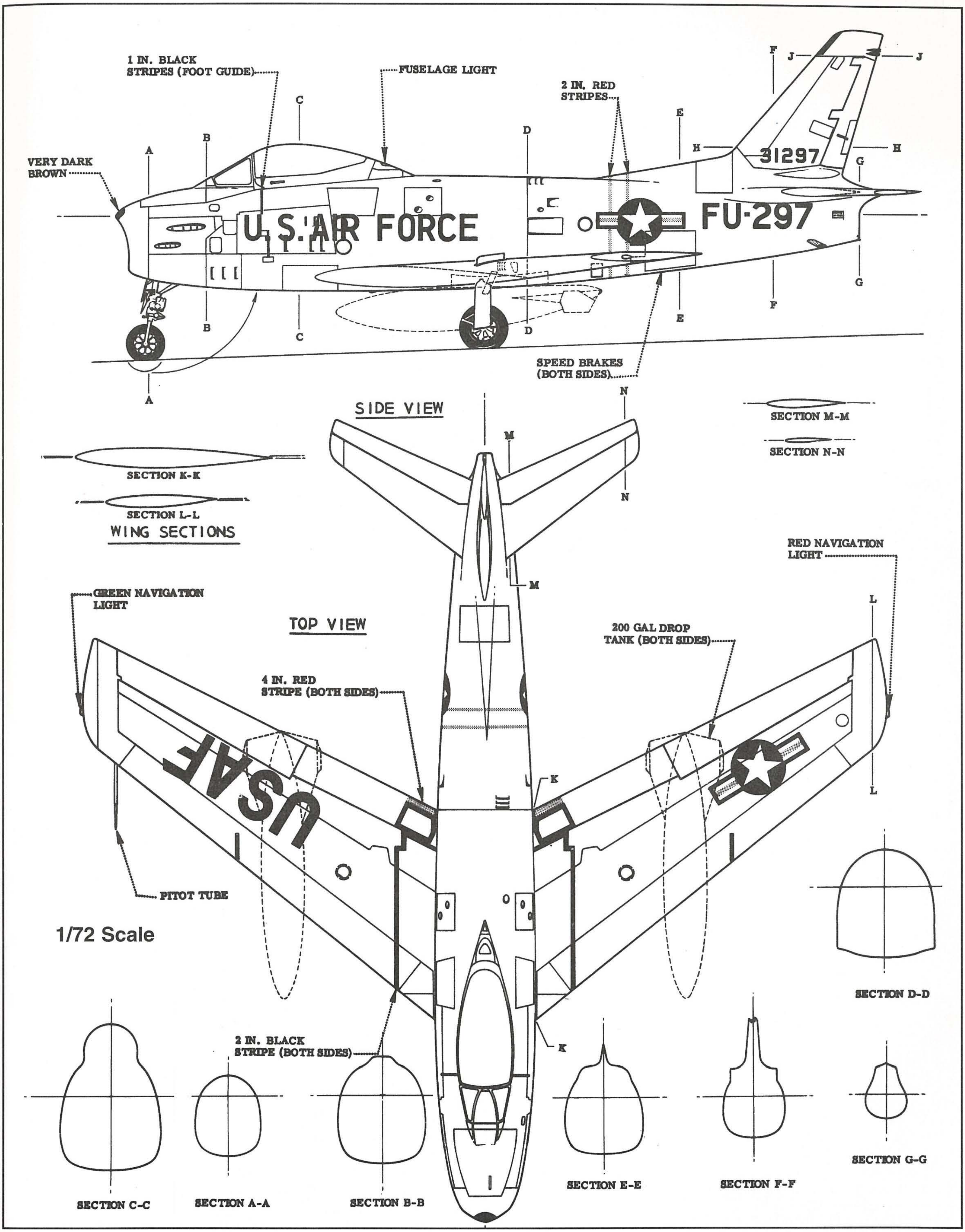
During the F-4C phase of the evaluation, frequent opportunities arose in which the AIM-7E could be employed. However, no live weapons were fired and final conclusions about effective use of the weapon awaited live firing against maneuvering targets to validate capability predictions.

COLLECT - AIRE MODELS 1/48 SCALE RESIN MODEL KIT

Collect-Aire Models was kind enough to provide a review copy of it's all-resin F-86H kit. The kit comes with decals for the 101st TFS, MA ANG and for the 138th TFS, NY ANG.

The kit can be ordered from Collect-Aire Models, 166 Granville Lane, North Andover, MA, 01845. Phone: (978) 688-7283 Fax: (978) 685-0220

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2 IN. RED STRIPES
VERY DARK BROWN
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SIDE VIEW
SECTION M-M
SECTION N-N
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SECTION K-K
SECTION L-L
WING SECTIONS
RED NAVIGATION LIGHT
GREEN NAVIGATION LIGHT
TOP VIEW
200 GAL DROP TANK (BOTH SIDES)
4 IN. RED STRIPE (BOTH SIDES)
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SECTION D-D
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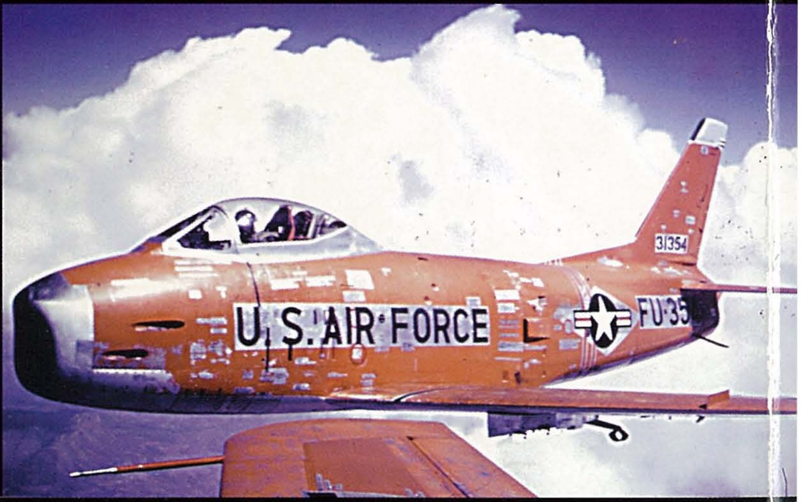
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